HAZARDOUS MATERIALS TECHNICAL REPORT

I-5: Fern Valley Interchange

December 18, 2007

Prepared by: Nicky Moody
URS Corporation

The preparation of this report was financed in part by the U.S. Department of Transportation, Federal Highway Administration. The opinions, findings and conclusions expressed in this report are not necessarily those of the U.S. Department of Transportation Federal Highway Administration.
Alternative Format Availability: In compliance with the Americans with Disabilities Act, alternative formats of this document will be made available upon request.
# TABLE OF CONTENTS

**Executive Summary** ............................................................................................................. i

1. Introduction ......................................................................................................................... 1
   1.1 Purpose of the Proposed Action.................................................................................. 1
   1.2 Need for the Proposed Action.................................................................................. 1

2. Project Alternatives ............................................................................................................... 3
   2.1 No-Build Alternative ............................................................................................... 4
   2.2 Build Alternatives .................................................................................................... 4
      2.2.1 Fern Valley Thru Alternative......................................................................... 4
      2.2.2 N. Phoenix Thru Alternative......................................................................... 5

3. Methodology ......................................................................................................................... 13

4. Agency Coordination and Involvement .............................................................................. 14
   4.1 Federal .................................................................................................................... 15
   4.2 State ....................................................................................................................... 16
   4.3 Local ....................................................................................................................... 17
   4.4 Search Radii ............................................................................................................ 17

5. Affected Environment .......................................................................................................... 17
   5.1 West of I-5 ............................................................................................................. 18
   5.2 Interchange Area ................................................................................................... 26
   5.3 East of I-5 ............................................................................................................. 26

6. Environmental Consequences ............................................................................................. 31
   6.1 Direct Impacts ......................................................................................................... 32
   6.2 Indirect Impacts ...................................................................................................... 48
   6.3 Cumulative Impacts ............................................................................................... 49
   6.4 Construction Impacts ............................................................................................. 50

7. Mitigation and Conservation Measures .............................................................................. 50
   7.1 No Build Alternative .............................................................................................. 50
   7.2 Fern Valley Thru Alternative.................................................................................. 51
   7.3 N. Phoenix Thru Alternative.................................................................................. 53

8. List of Preparers .................................................................................................................. 54

9. References and Information Sources .................................................................................. 54
APPENDICES

Appendix A  Photographs

FIGURES

Figure ES-1  Area of Potential Impact Including Sites of Concern
Figure ES-2a  Fern Valley Thru Alternative: West of I-5
Figure ES-2b  Fern Valley Thru Alternative: East of I-5
Figure ES-3a  N. Phoenix Thru Alternative: West of I-5
Figure ES-3b  N. Phoenix Thru Alternative: East of I-5
Figure 1   Project Vicinity Map
Figure 2   Fern Valley Thru Alternative
Figure 3   N. Phoenix Thru Alternative
Figure 4   S. Phoenix Road: Typical Cross-Section
Figure 5   N. Phoenix Road: Typical Cross-Section
Figure 6   Highway 99: Typical Cross-Section
Figure 7   Fern Valley Road: Typical Cross-Section
Figure 8   Area of Potential Impact Including Sites of Concern
Figure 9a   Fern Valley Thru Alternative West of I-5
Figure 9b   Fern Valley Thru Alternative East of I-5
Figure 10a  N. Phoenix Thru Alternative: West of I-5
Figure 10b  N. Phoenix Thru Alternative: East of I-5

TABLES

Table ES-1  Hazardous Materials Sites of Concern
Table ES-2  Sites of Concern Impact Rankings
Table ES-3  Summary of Hazardous Materials Potential Impacts by Alternative
Table 5-1  Hazardous Materials Sites of Concern and Impact Ranking
## ACRONYMS

List of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM</td>
<td>Asbestos Containing Material</td>
</tr>
<tr>
<td>API</td>
<td>Area of Potential Impact</td>
</tr>
<tr>
<td>AST</td>
<td>Aboveground Storage Tank</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>bgs</td>
<td>Below Ground Surface</td>
</tr>
<tr>
<td>BTEX</td>
<td>Benzene, Toluene, Ethylbenzene, and Total Xylenes</td>
</tr>
<tr>
<td>CERCLIS</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Information System</td>
</tr>
<tr>
<td>CESQG</td>
<td>Conditionally Exempt Generator</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulation</td>
</tr>
<tr>
<td>CORRACTS</td>
<td>Corrective Action Report</td>
</tr>
<tr>
<td>DEQ</td>
<td>Oregon Department of Environmental Quality</td>
</tr>
<tr>
<td>ECSI</td>
<td>Environmental Cleanup Site Information</td>
</tr>
<tr>
<td>EDR</td>
<td>Environmental Database Resources, Inc.</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>ESA</td>
<td>Environmental Site Assessment</td>
</tr>
<tr>
<td>FVI</td>
<td>Fern Valley Interchange</td>
</tr>
<tr>
<td>LQG</td>
<td>Large Quantity Generator</td>
</tr>
<tr>
<td>LUST</td>
<td>Leaking Underground Storage Tank</td>
</tr>
<tr>
<td>mg/kg</td>
<td>Milligrams per Kilogram</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NFA</td>
<td>No Further Action</td>
</tr>
<tr>
<td>NPL</td>
<td>Federal EPA National Priority List (Federal Superfund)</td>
</tr>
<tr>
<td>ODOT</td>
<td>Oregon Department of Transportation</td>
</tr>
<tr>
<td>OR HAZMAT</td>
<td>Hazardous Material Incidents</td>
</tr>
<tr>
<td>OR SPILLS</td>
<td>Spill Data</td>
</tr>
<tr>
<td>OSFM</td>
<td>Oregon State Fire Marshal</td>
</tr>
<tr>
<td>OWS</td>
<td>Oil Water Separator</td>
</tr>
<tr>
<td>PAH</td>
<td>Polycyclic Aromatic Hydrocarbons</td>
</tr>
<tr>
<td>PCB</td>
<td>Polychlorinated Biphenyl</td>
</tr>
<tr>
<td>PCG</td>
<td>Petroleum Contaminated Groundwater</td>
</tr>
<tr>
<td>PCS</td>
<td>Petroleum Contaminated Soil</td>
</tr>
<tr>
<td>RBC</td>
<td>Risk-Based Concentration</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>RCRIS</td>
<td>Resource Conservation and Recovery Information System</td>
</tr>
<tr>
<td>SCAP</td>
<td>Superfund Comprehensive Accomplishment Plans</td>
</tr>
<tr>
<td>SQG</td>
<td>Small Quantity Generator</td>
</tr>
<tr>
<td>SWF/LF</td>
<td>Solid Waste Facilities/Landfill Sites</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>TPH</td>
<td>Total Petroleum Hydrocarbons</td>
</tr>
<tr>
<td>TPH-Dx</td>
<td>Diesel- and Heavy Oil-Range Hydrocarbons</td>
</tr>
<tr>
<td>TPH-Gx</td>
<td>Gasoline-Range Hydrocarbons</td>
</tr>
<tr>
<td>TPH-HCID</td>
<td>Hydrocarbon Identification</td>
</tr>
<tr>
<td>ug/L</td>
<td>Micrograms per Liter</td>
</tr>
<tr>
<td>URS</td>
<td>URS Corporation</td>
</tr>
<tr>
<td>UST</td>
<td>Underground Storage Tank</td>
</tr>
</tbody>
</table>
The following provides a summary of the key elements of the Hazardous Materials Technical Report for the Fern Valley Interchange project.

METHODOLOGY

The purpose of this report was to identify potential sources of contamination that could impact the Project’s area of potential impact (API) or that construction of the selected alternative could exacerbate and cause additional liability to the Oregon Department of Transportation (ODOT).

Below is a summary of the tasks conducted by URS Corporation (URS) in order to compile the final list of the Sites of Concern.

- The EDR Report: Initially, a map including the two build alternatives was submitted to Environmental Database Resources, Inc. (EDR), of Southport, Connecticut. EDR reviewed the U.S. Environmental Protection Agency (EPA), Oregon Department of Environmental Quality (DEQ), and Oregon State Fire Marshal (OSFM) databases within specific radii around the alternatives. EDR generated a summary database report (the EDR Report). Below is a list of the databases and the specific radii used by EDR for each database:

  - Within 1-mile radius from the alternatives:
    - EPA National Priority List (NPL)
    - EPA Proposed NPL
    - EPA Corrective Action Report (CORRACTS)
    - DEQ Environmental Cleanup Site Information (ECSI)
  
  - Within ½-mile radius from the alternatives:
    - EPA Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
    - EPA CERCLIS/No Further Response Action Planned (NFRAP)
    - DEQ Leaking Underground Storage Tank (LUST)
    - DEQ Solid Waste Facilities/Landfill Sites
  
  - Within ¼-mile radius from the alternatives:
    - EPA Resource Conservation and Recovery Act (RCRA) Generators (Small and Large)
    - DEQ Underground Storage Tanks (USTs)
    - Oregon Hazardous Material Incidents (OR HAZMAT)
    - Oregon Spill Data (OR SPILLS)

- Initial List of Sites: After screening out certain sites in the EDR Report based on their distance and hydrologic position relative to the alternatives, URS developed...
an initial list of sites that had the potential to impact soils and/or groundwater beneath the API.

- **Drive-by Survey:** URS conducted a drive-by survey to field verify locations and correctly mark sites on the engineering design drawings.

- **Aerial Photographs:** URS reviewed historical aerial photographs to obtain information concerning past land use practices within the API.

- **Regulatory File Reviews:** URS reviewed the hard copy DEQ files for the initial sites which are listed on the LUST and ECSI databases. URS also reviewed the OSFM hazardous substance incident online database for additional information concerning the OR HAZMAT listings.

Based on the above gathered information, URS narrowed down the initial list to 25 Sites of Concern. URS then developed a qualitative ranking system for the Sites of Concern based on the level of concern for contamination to impact each alternative. The potential was listed as low, moderate or high. Finally, when applicable, each Site of Concern was also correlated with each alternative as the impact of each site may vary with each alternative route.

- A low concern indicates the potential for hazardous materials to impact the soil and groundwater beneath the alternative is insignificant, and no further action is needed.

- A moderate concern indicates the potential for hazardous materials to impact the alternative is present, and further action is recommended. A moderate ranking is also assigned to sites that have not been fully investigated, or limited information was available for review.

- A high concern indicates hazardous materials have a high potential to impact the alternative, and further action is recommended.

**AFFECTED ENVIRONMENT**

For the Project, the affected environment consists of 25 Sites of Concern. These sites were identified as having been impacted by releases of hazardous materials and/or hazardous waste that may impact the Project. Seventeen Sites of Concern were identified to the west of I-5, and eight were identified to the east of I-5. No Sites of Concern were identified within the interchange area. The Sites of Concern, including the database listings and database status, are listed on Table ES-1. The Sites of Concern are located on Figure ES-1 (Area of Potential Impact Including Sites of Concern) as grey dots.

According to Table ES-1, in some cases, the Sites of Concern are listed on multiple databases. Three Sites of Concern are listed on the ECSI database. Two Sites of Concern are listed on the OR SPILLS and RCRA-generator databases, respectively. Five Sites of Concern are listed on AST, eight on UST, seven on LUST, and six on OR HAZMAT.
Area of Potential Impact Including Sites of Concern

Figure ES-1
November 2007

Map Features
- Sites of Concern
- Area of Potential Impact

Source: URS, ODOT

Area of Potential Impact Including Sites of Concern

Figure ES-1
November 2007

Map Features
- Sites of Concern
- Area of Potential Impact

Source: URS, ODOT
## TABLE ES-1: HAZARDOUS MATERIALS SITES OF CONCERN

<table>
<thead>
<tr>
<th>Site #</th>
<th>Site Name</th>
<th>Databases</th>
<th>Information and Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sites Located West of I-5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Glenwood Business Park</td>
<td>ECSI</td>
<td>No Further Action (NFA) on 29-Dec-06.</td>
</tr>
<tr>
<td>2</td>
<td>D &amp; S Harley Davidson Inc.</td>
<td>AST, UST</td>
<td>Gasoline aboveground storage tank (AST); One decommissioned UST.</td>
</tr>
<tr>
<td>3</td>
<td>Western Mechanical Inc.</td>
<td>UST</td>
<td>One decommissioned UST.</td>
</tr>
<tr>
<td>4</td>
<td>Bear Creek Valley Sanitary Authority</td>
<td>UST</td>
<td>One decommissioned UST.</td>
</tr>
<tr>
<td>5</td>
<td>OR HAZMAT Release</td>
<td>OR HAZMAT</td>
<td>On 29-Apr-92, possible residential drug laboratory discovered.</td>
</tr>
<tr>
<td>6</td>
<td>Phoenix Circle K / ConocoPhillips #162 (Former Phoenix Exxon #9290)</td>
<td>UST, LUST, OR HAZMAT</td>
<td>Three active USTs and five decommissioned USTs; LUST: NFA issued on 14-Aug-01; OR HAZMAT: On 1-Jul-93, A truck being towed spilled motor oil. No additional information was available.</td>
</tr>
<tr>
<td>7</td>
<td>Residences</td>
<td>None</td>
<td>Possible hazardous building materials and heating oil USTs associated with two residences.</td>
</tr>
<tr>
<td>8</td>
<td>OR HAZMAT Release</td>
<td>OR HAZMAT</td>
<td>On 27-July-93: Small spill of a chemical when a saddle tank on a tractor was overfilled. Spill cleaned up.</td>
</tr>
<tr>
<td>9</td>
<td>Phoenix Automotive Center</td>
<td>AST</td>
<td>Used oil AST.</td>
</tr>
<tr>
<td>10</td>
<td>R C Auto Parts Inc.</td>
<td>AST</td>
<td>Sodium hydroxide AST.</td>
</tr>
<tr>
<td>11</td>
<td>OR HAZMAT Release</td>
<td>OR HAZMAT</td>
<td>On 4-Apr-05, Phoenix Fire Department was notified of a green liquid present in Bear Creek. Samples were collected, and a test with SensIR indicated 99.98 percent water. In addition, the pH was 7.5.</td>
</tr>
<tr>
<td>12</td>
<td>Phoenix Discount Gas / Bi-Mor Stations, Inc. #2</td>
<td>UST, LUST</td>
<td>Two active USTs; LUST: Cleanup started on 7-Dec-98, but an NFA has not been issued.</td>
</tr>
<tr>
<td>13</td>
<td>OR HAZMAT Release</td>
<td>OR HAZMAT</td>
<td>On 24-Oct-94: Paint spilled in the roadway. No additional information was available.</td>
</tr>
<tr>
<td>14</td>
<td>Ken's Automotive</td>
<td>LUST</td>
<td>LUST: NFA issued on 6-Mar-89.</td>
</tr>
<tr>
<td>15</td>
<td>Phoenix Elementary School: Heating Oil Tank</td>
<td>LUST</td>
<td>LUST: Cleanup started on 13-May-95, but an NFA has not been issued.</td>
</tr>
<tr>
<td>16</td>
<td>Former Special Products of Oregon</td>
<td>RCRA-SQG, ECSI</td>
<td>No RCRA violations found; ECSI: NFA issued for an on-site oil spill.</td>
</tr>
<tr>
<td>17</td>
<td>Lindvig Machine Shop</td>
<td>ECSI</td>
<td>The DEQ recommends that further assessment of the site is necessary as adequate soil and groundwater sampling has not been conducted.</td>
</tr>
<tr>
<td><strong>Sites Located East of I-5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>OR SPILLS Release</td>
<td>OR SPILLS</td>
<td>On 22-Apr-94: One quart of crankcase oil was spilled when a backhoe tipped over.</td>
</tr>
<tr>
<td>19</td>
<td>PETRO Truck Stop and Shopping Center</td>
<td>UST, LUST, AST, OR SPILLS, OR HAZMAT</td>
<td>Eight OR HAZMAT, two LUST, and five OR SPILLS incidences are listed for the site. The most significant releases occurred on 4-Nov-95 (OR SPILL #95-2202 &amp; LUST #15-94-0058) and 23-Nov-03 (OR SPILL #03-2607 &amp; LUST #15-03-2468). In 1995, a 3-inch diesel fuel pipe was severed by a contractor, and 8,970-gallons were released to the subsurface. Then in 2003, an additional spill occurred when a product pipe leaked approximately 2,900 gallons diesel to the subsurface. The two LUST listings resulted from the two releases. The OR HAZMAT and remaining three OR SPILLS incidences were related to small surface spills. LUST #15-94-0058: Cleanup started on 10-Jan-95; NFA issued on 18-Aug-03; LUST #15-03-2468: Cleanup started on 23-Nov-03, but an NFA has not been issued; UST #8182: 6 active USTs and 9 decommissioned USTs; UST #11615: 3 active USTs.</td>
</tr>
<tr>
<td>20</td>
<td>Former Giant Cardlock Station</td>
<td>UST, LUST</td>
<td>Three decommissioned USTs; TPH allowed remaining on-site at a maximum concentration of 3,135 mg/kg; LUST: NFA issued on 15-Jul-91.</td>
</tr>
<tr>
<td>21</td>
<td>DSU Peterbilt &amp; GMC Inc.</td>
<td>AST, RCRA-CESQG</td>
<td>Used oil AST, No RCRA violations found.</td>
</tr>
<tr>
<td>22</td>
<td>Arrowhead Comice Orchard - UST</td>
<td>UST, LUST</td>
<td>One decommissioned UST; LUST: NFA issued on 22-Mar-99.</td>
</tr>
<tr>
<td>23</td>
<td>Farm Buildings</td>
<td>None</td>
<td>Possible heating oil and fuel oil UST associated with the farm buildings.</td>
</tr>
<tr>
<td>24</td>
<td>Orchard Field</td>
<td>None</td>
<td>Possible elevated concentrations of herbicide and pesticides in the surface soil.</td>
</tr>
<tr>
<td>25</td>
<td>Farm Buildings</td>
<td>None</td>
<td>Possible heating oil and fuel oil UST and hazardous building materials associated with the farm buildings.</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL CONSEQUENCES

Direct Impacts

The potential direct impacts of the Sites of Concern on construction of the Project may include the following:

- Delays to allow for negotiations with responsible parties and regulatory agencies.
- Possible action by regulatory agencies.
- Remediation activities.
- Possible exposure of construction and excavation workers or the public to hazardous materials.
- Increased costs for disposal and replacement of contaminated soil and regulatory interaction.
- Possible releases of hazardous materials into previously unaffected areas.
- Improper handling of hazardous materials brought onto the construction sites during construction activities, which may lead to spills or releases to the environment.
- Possible exposure of abatement contractors to asbestos and lead-containing paint in buildings requiring demolition.

Further investigation of the affected environment, as well as early interaction with regulatory agencies during the planning phase, could avoid or reduce the risk of the above listed effects from occurring.

Below is a summary of the number of Site of Concern that pose a low, moderate, or high potential to impact the proposed alternatives. The history and status of each of the listed sites is summarized in the Table ES-1. The locations and concern rankings of the 25 Sites of Concern compared with the two build alternatives are listed below on Table ES-2.

No-Build Alternative. The No-Build Alternative would leave the current road system in place. If no changes were to occur to the current road configurations, any soil or groundwater contamination (if present) from the listed sites would still be present and would not be impacted. Therefore, none of the 25 Sites of Concern identified within the API could impact this alternative.

Fern Valley Thru Alternative. The potential for these 25 Sites of Concern to impact the Fern Valley Thru Alternative during construction is summarized below. Figures ES-2a and 2b indicate the location of each Site of Concern in relation to the Fern Valley Thru Alternative.
Eighteen of the 25 Sites of Concern are a low concern to the Fern Valley Thru Alternative; three are a moderate concern; and four are a high concern.

**N. Phoenix Thru Alternative.** The potential for these 25 Sites of Concern to impact the N. Phoenix Thru Alternative during construction is summarized below. Figures ES-3a and ES-3b indicate the location of each Site of Concern in relation to the N. Phoenix Thru Alternative.

Eighteen of the 25 Sites of Concern are a low concern to the N. Phoenix Thru Alternative; three are a moderate concern; and three are a high concern. One of the 25 Sites of Concern poses no concern to the N. Phoenix Thru Alternative.

West of I-5, the potential for hazardous materials impacts are the same for both alternatives. East of I-5 (Sites 18 through 25), Fern Valley Thru would have slightly more potential impacts than the N. Phoenix Thru Alternative. A summary of the comparative impacts is provided in Table ES-3.

### TABLE ES-2: SITES OF CONCERN IMPACT RANKINGS

<table>
<thead>
<tr>
<th>Site #</th>
<th>Site Name</th>
<th>Distance of the Site from the Alternative</th>
<th>Concern</th>
<th>Distance of the Site from the Alternative</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Glenwood Business Park</td>
<td>3,750 feet to NW</td>
<td>Low</td>
<td>3,750 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>D &amp; S Harley Davidson Inc. and Jack T. Walker</td>
<td>1,320 feet to NW</td>
<td>Low</td>
<td>1,320 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>3</td>
<td>Western Mechanical Inc.</td>
<td>1,390 feet to NW</td>
<td>Low</td>
<td>1,390 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>4</td>
<td>Bear Creek Valley Sanitary Authority</td>
<td>1,200 feet to NW</td>
<td>Low</td>
<td>1,200 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>5</td>
<td>OR HAZMAT Release</td>
<td>1,070 feet to NW</td>
<td>Low</td>
<td>1,070 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>6</td>
<td>Phoenix Circle K / ConocoPhillips #162 (Former Phoenix Exxon #9290)</td>
<td>Partial acquisition at S and W property boundaries</td>
<td>Moderate</td>
<td>Partial acquisition at S and W property boundaries</td>
<td>Moderate</td>
</tr>
<tr>
<td>7</td>
<td>Residences</td>
<td>Full to partial acquisitions</td>
<td>High</td>
<td>Full to partial acquisitions</td>
<td>High</td>
</tr>
<tr>
<td>8</td>
<td>OR HAZMAT Release</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
</tr>
<tr>
<td>9</td>
<td>Phoenix Automotive Center</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
<td>Partial acquisition at E property boundary</td>
<td>Low</td>
</tr>
<tr>
<td>10</td>
<td>R C Auto Parts Inc.</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
</tr>
<tr>
<td>11</td>
<td>OR HAZMAT Release</td>
<td>Release potentially within the alternative</td>
<td>Low</td>
<td>Release potentially within the alternative</td>
<td>Low</td>
</tr>
<tr>
<td>12</td>
<td>Phoenix Discount Gas / Bi-Mor Stations, Inc. #2</td>
<td>39 feet to S-SE</td>
<td>Low</td>
<td>39 feet to S-SE</td>
<td>Low</td>
</tr>
<tr>
<td>13</td>
<td>OR HAZMAT Release</td>
<td>692 feet to S-SE</td>
<td>Low</td>
<td>692 feet to S-SE</td>
<td>Low</td>
</tr>
<tr>
<td>14</td>
<td>Ken's Automotive</td>
<td>1,630 feet to SW</td>
<td>Low</td>
<td>1,630 feet to SW</td>
<td>Low</td>
</tr>
<tr>
<td>15</td>
<td>Phoenix Elementary School: Heating Oil Tank</td>
<td>1,310 feet to SW</td>
<td>Low</td>
<td>1,310 feet to SW</td>
<td>Low</td>
</tr>
<tr>
<td>16</td>
<td>Former Special Products of Oregon</td>
<td>3,280 feet to SW</td>
<td>Low</td>
<td>3,280 feet to SW</td>
<td>Low</td>
</tr>
</tbody>
</table>
**TABLE ES-2: SITES OF CONCERN IMPACT RANKINGS**

<table>
<thead>
<tr>
<th>Site #</th>
<th>Site Name</th>
<th>Distance of the Site from the Alternative</th>
<th>Concern</th>
<th>Distance of the Site from the Alternative</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Lindvig Machine Shop</td>
<td>2,620 feet to S</td>
<td>Low</td>
<td>2,620 feet to S</td>
<td>Low</td>
</tr>
<tr>
<td>18</td>
<td>OR SPILLS Release</td>
<td>Adjacent to NE</td>
<td>Low</td>
<td>716 feet to E</td>
<td>Low</td>
</tr>
<tr>
<td>19</td>
<td>PETRO Truck Stop and Shopping Center</td>
<td>20 feet to E</td>
<td>High</td>
<td>Partial acquisition along N property boundary</td>
<td>High</td>
</tr>
<tr>
<td>20</td>
<td>Former Giant Cardlock Station</td>
<td>Acquisition through N half of tax lot</td>
<td>High</td>
<td>Adjacent to NE</td>
<td>Moderate</td>
</tr>
<tr>
<td>21</td>
<td>DSU Peterbilt &amp; GMC Inc.</td>
<td>Partial acquisitions at NW corner of the property and S property boundary</td>
<td>Low</td>
<td>Partial acquisition at SE corner of the property and 20 feet to SE</td>
<td>Low</td>
</tr>
<tr>
<td>22</td>
<td>Arrowhead Comice Orchard - UST</td>
<td>100 feet to N</td>
<td>Low</td>
<td>120 feet to the N-NE</td>
<td>Low</td>
</tr>
<tr>
<td>23</td>
<td>Farm Buildings</td>
<td>Acquisition through the center of the tax lot between the two groups of buildings</td>
<td>Moderate</td>
<td>400 feet to E</td>
<td>None</td>
</tr>
<tr>
<td>24</td>
<td>Orchard Field</td>
<td>Acquisition through the center of the tax lot</td>
<td>High</td>
<td>Acquisition through the center of the tax lot</td>
<td>High</td>
</tr>
<tr>
<td>25</td>
<td>Farm Buildings</td>
<td>Acquisition through the SW corner of the tax lot</td>
<td>Moderate</td>
<td>Acquisition through the SW corner of the tax lot</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**TABLE ES-3: SUMMARY OF HAZARDOUS MATERIALS POTENTIAL IMPACTS BY ALTERNATIVE**

<table>
<thead>
<tr>
<th>Location</th>
<th>Potential Sites of Concern</th>
<th>Level of Concern</th>
<th>Potential Sites of Concern</th>
<th>Level of Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>West of I-5</td>
<td>15</td>
<td>Low</td>
<td>15</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Moderate</td>
<td>1</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>High</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td>Interchange Area</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>East of I-5</td>
<td>3</td>
<td>Low</td>
<td>3</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Moderate</td>
<td>2</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>High</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td></td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

**Build Alternative Comparison.** In summary, no Sites of Concern were identified in the interchange area for either alternative. Sites 1 through 17 and sites 24 and 25 would impact both alternatives with the same environmental consequences because both alternatives are located the same distance and direction from these sites.

The two alternatives are located at different positioning compared to Sites 18 through 23; however, the concern related to possible hazardous material impacts is the same for four (sites 18, 19, 21, and 22) of these six sites.

The remaining two sites (20 and 23) potentially impact the Fern Valley Thru Alternative more than the N. Phoenix Thru Alternative due to their proximity. Site 23, the Farm Buildings, is no concern to the N. Phoenix Thru Alternative, but a moderate concern to the Fern Valley Thru Alternative. Site 20, Former Giant Cardlock Station is a moderate concern to the N. Phoenix Thru Alternative and a high concern to the Fern Valley Thru Alternative.
Fern Valley Thru
Alternative:
West of I-5

Figure ES-2a
November 2007

Map Features
- Fern Valley East Alternative

Sites of Concern
- HIGH
- MODERATE
- LOW

Source: URS, ODOT
Map Features

- North Phoenix Through Alternative

Sites of Concern

- HIGH
- MODERATE
- LOW

Source: URS, ODOT

N. Phoenix Thru Alternative:
West of I-5

Figure ES-3a
November 2007
Map Features
- North Phoenix Through Alternative

Sites of Concern
- HIGH
- MODERATE
- LOW
- NONE

Source: URS, ODOT

N. Phoenix Thru Alternative:
East of I-5

Figure ES-3b
November 2007
Indirect Impacts

No-Build Alternative. If no changes were to occur to the current roadway configuration, any soil or groundwater contamination (if present) from the listed sites would still be present.

Fern Valley Thru and N. Phoenix Thru Alternatives. Project activities could potentially have both beneficial and non-beneficial effects on the API upon completion. The potentially beneficial effects include:

- Increased public safety and positive impacts on the environment associated with possible contamination removal in the API.
- Improved understanding of existing subsurface conditions from subsurface investigations.
- Enhanced assessment of property values within API as a result of subsurface investigations.
- Improved worker and public safety during construction as a result of following necessary safety protocols associated with hazardous materials.

The potential non-beneficial indirect effects consist mainly of:

- Possible short-term exposure of hazardous materials to the public and environment as a result of construction activities.
- Possible re-mobilization of existing contaminated soil and groundwater due to excavation below sub-grade. Groundwater may preferentially flow within the newly constructed utility corridors.

Cumulative Impacts

No-Build Alternative. There would be no anticipated cumulative impacts associated with the No-Build Alternative.

Fern Valley Thru and N. Phoenix Thru Alternatives. Numerous project actions could potentially have beneficial and non-beneficial effects on the API, both during and after the completion of activities. When combined with other projects and potential development in the API, beneficial cumulative effects of this project include:

- Improved public and environmental safety within and adjacent to the API as a result of subsurface investigations and site-remediation actions necessary for construction activities and risk-based site closures in the area (associated with anticipated projects in the area).
Better understanding of existing hazardous materials located above and below the ground surface.

Enhanced understanding of existing geologic conditions due to subsurface investigations and excavations.

The potentially non-beneficial effects include:

- Possible increase to human health and safety hazards due to potential disturbance and exposures to contaminated soil and groundwater during and after construction activities.

- Potential increased use of hazardous materials in the API as a result of possible increased commercial development and activity due to project completion. Further development of the area may lead to the likelihood that sites not contaminated with hazardous materials will become contaminated. Further construction of utility corridors and structures on the impacted sites will lead to exposure to construction workers and building occupants.

- Potential increased cumulative demand for impacted soil disposal facilities.

**Construction Impacts**

**No-Build Alternative.** There would be no construction activities associated with the No-Build Alternative.

**Fern Valley Thru and N. Phoenix Thru Alternatives.** Development of the Project could cause construction workers to be exposed to hazardous materials. However, the level of exposure to construction workers could be minimized with proper training and the use of appropriate protective equipment.

**SUMMARY OF MITIGATION AND CONSERVATION MEASURES**

This section summarizes the potential measures that would be utilized to mitigate impacts associated with the two build alternatives. These actions would be the same for both alternatives.

- The acquisition and/or leasing of land containing hazardous waste could incur risk of financial liability if contamination requiring characterization, removal, or disposal were to be discovered. To reduce liability risks, the data compiled in this report would be reviewed and evaluated to identify parcels where hazardous materials are known to exist or may be present.

- Prior to acquisition and/or leasing, the appropriate regulatory agencies would be contacted in order to determine whether more recent information is available, and whether further assessment of the parcels is scheduled.
• Entering into an agreement with a regulatory agency, such as a Prospective Purchase Agreement (PPA) may lessen future liabilities resulting from purchasing impacted properties.

• Where potential hazardous materials sites would be displaced or are located in close proximity to the proposed alternative, additional in-depth study would be conducted as needed. This could include conducting geophysical surveys and/or conducting subsurface assessments. A limited sampling and analysis program, coordinated in conjunction with geotechnical investigations, could be developed and implemented on sites with known contamination.

• Emergency response procedures, consistent with existing laws and regulations would be developed for use by ODOT personnel and the construction contractor in the unlikely event of a major hazardous materials release close to the selected alternative.

• Controls and measures would be planned, designed and implemented to avoid further exacerbation of impacted sites, and plans and procedures would be prepared to prevent future releases or spills.

• Adverse impacts from contamination during construction would be minimized or avoided. A work plan would be designed for each site, which would include actions to be implemented if construction activities encounter impacted soil and/or groundwater.

• Depending on the selected alternative and the potential severity of hazardous materials exposure associated with it, a Health and Safety Plan would be developed for all construction activities consistent with applicable laws in effect at the time of construction.

• Additionally, the closure of impacted soil and/or groundwater areas remaining beneath the newly constructed alternative would be addressed with the appropriate regulatory agencies prior to construction.

Additional specific mitigation measures that would be included in the Project specifications include:

• For any right of way acquisition involving USTs and hazardous materials, the owner will have the responsibility to provide the state with a site free and clear of any contaminants, and to coordinate a cleanup and closure plan with DEQ, as necessary.

• For all facilities or residences in the Project vicinity that will be renovated, relocated, or demolished, the appropriate governing bodies will be contacted to assure proper handling and disposal of regulated materials. With their approval, the work will be completed in accordance with the appropriate laws, rules, and regulations.

• The construction of the preferred alternative may require the demolition of structures. Asbestos-containing materials (ACM) and other hazardous building
materials including: lead-containing paints, polychlorinated biphenyl (PCB) light ballasts, mercury vapor-containing fluorescent light tubes, and mercury halide lights may have been used in these buildings.

For buildings to be relocated or demolished, the DEQ is required to be notified, even for those not containing ACM. Prior to the removal of the buildings in the proposed right of way, an Asbestos Hazard Emergency Response Act (AHERA) accredited asbestos inspector and an Oregon Department of Human Services (DHS) certified lead-based paint inspector will complete a hazardous building materials assessment. If ACM is detected in buildings that will be demolished or removed, the contractor and method of removing, handling, and disposal of the materials will be approved by the DEQ.

- A work plan will be implemented for each site and will include actions to be implemented if construction activities encounter septic-contaminated soil and/or groundwater. There is a potential for contaminated groundwater to be encountered. Recommended actions include a method to lower the groundwater table and dispose of groundwater; if construction encounters contaminated soils, actions will include proper excavation and handling of contaminated soils.

- Hazardous substances on properties may be encountered during project construction. A contingency plan for emergency response and cleanup of hazardous waste will be included in the construction contract. The contaminated sites must be investigated by a qualified contractor. If hazardous wastes are identified, ODOT will coordinate the cleanup plans with DEQ region personnel.

- Mitigation measures for hazardous material spills will consist of accident prevention and diverting spilled materials away from surface water resources.

- ODOT will comply with all applicable federal, state, and local laws and regulations as they pertain to the storage, handling, management, transportation, disposal and documentation of hazardous substances (as defined in ORS 465.200); oil and hazardous materials (as defined in OAR 340-108-0002); hazardous waste (as defined in 40 CFR 261 and OAR 340-101-0033); solid waste (as defined in 40 CFR 258, ORS 459 and OAR 340).
1. INTRODUCTION

The Hazardous Materials Technical Report has been prepared to support the Environmental Assessment (EA) for the Fern Valley Interchange (FVI) project (the Project). The FVI is located along Interstate 5 (I-5), in Jackson County, near the City of Phoenix (Figure 1).

The purpose of this report is to provide an assessment of the potential for hazardous materials impacts associated with this Project. This impact analysis has been conducted pursuant to the requirements of the National Environmental Policy Act (NEPA), the Council of Environmental Quality (CEQ), and the Federal Highway Administration (FHA).

1.1 PURPOSE OF THE PROPOSED ACTION

The purpose of the proposed action is to reduce congestion and improve operational conditions at the I-5 interchange with Fern Valley Road, on Fern Valley Road within the City of Phoenix Urban Growth Boundary, and on Highway 99 near its intersection with Fern Valley Road. In addition, the Fern Valley Road Bridge over Bear Creek is proposed for replacement.

1.2 NEED FOR THE PROPOSED ACTION

The I-5 / Fern Valley Road interchange is experiencing increasing congestion due to continued growth in Phoenix and southeast Medford, the status of the Medford-Ashland area as a regional business destination, and a greater amount of through traffic on I-5. Increased use of the interchange by local residents, commuters, heavy trucks and regional traffic causes vehicles at the off-ramps to queue all the way to the freeway during times of heavy peak hour volumes. The capacity of the interchange is degrading rapidly, and traffic safety remains an ongoing concern.

An interim project (Phase 1) has recently been constructed at the I-5 / Fern Valley interchange to improve existing conditions in the short-term, but lacking further improvements, the interchange is projected to degrade to unacceptable levels of congestion (over the 0.85 volume-to-capacity [v/c] ratio standard) within 5 to 10 years. Recent ODOT traffic studies estimate that by 2012, vehicle queues at the ramp terminal intersections along Fern Valley Road would start blocking adjacent intersections and both ramp terminals would have a v/c ratio near or over 1.0. By 2022, if no new improvements are constructed, Fern Valley Road would be at or over capacity. Traffic studies also predict that the queue on the northbound I-5 on-ramp would extend into the northbound through lanes of I-5, creating a much higher risk of rear-end collisions.

In 2022, all of the intersections on Fern Valley Road except for Luman Road are projected to have v/c ratios ranging from just over 1.0 to greater than 2.0. Fern Valley Road would be queued in both directions almost the entire distance between Highway 99.
and N. Phoenix Road. Very long queues will also occur on Highway 99, N. Phoenix Road, and Bolz Lane as the over-capacity signalized intersections on Fern Valley Road would meter traffic through this area.

The Fern Valley Road interchange does not meet current interchange design standards. The steepness of the approaches to the Fern Valley Road overcrossing limits the visibility of interchange traffic. This limited "sight distance" forces drivers to make unsafe turns onto Fern Valley Road. In addition, the length of the I-5 ramp tapers and acceleration lanes are substandard (425 feet vs. the ODOT standard of 525 feet), which results in short stopping and acceleration distances.

Fern Valley Road has substandard shoulders (4-foot shoulders on the overcrossing and 6-foot shoulders on the approaches vs. the ODOT standard of 8 feet) and does not have dedicated bicycle lanes. Sidewalks are discontinuous along Fern Valley Road, creating safety concerns for pedestrians. This poses particular problems on the overcrossing and from Bear Creek Bridge to Highway 99, where there are no sidewalks, but where pedestrians need to be accommodated.

Fern Valley Road crosses Bear Creek between the I-5 interchange and Highway 99. This narrow bridge is already becoming a bottleneck on Fern Valley Road. In addition, the bridge is over 50 years old and is structurally deficient and functionally obsolete. Even if the interchange were to be completely rebuilt, the two-lane bridge would still cause long queues to occur on Fern Valley Road, eventually impacting the ramp terminals and the function of the interchange.

The western terminus of Fern Valley Road, at its intersection with Highway 99, is a substandard design with one leg serving a retail business parking lot. There are numerous accesses creating safety issues near the Highway 99/Fern Valley Road intersection. The crash rate on Highway 99 through the study area is double the published crash rates for primary non-freeway urban facilities. Most of the crashes are because of the closely-spaced driveways and intersections. In addition, Highway 99 has no dedicated bike lanes or shoulders; it has 14-foot outside lanes where bikes share the roadway. The center-turn median is 14 feet (vs. the ODOT standard of 16 feet); it was reduced from standard in order to allow room for 14-foot outside lanes. There are no sidewalks on Highway 99 north of Fern Valley Road except intermittently on business frontages.

2. PROJECT ALTERNATIVES

Three alternatives are evaluated in this technical report: a No-Build Alternative and two build alternatives. The proposed build alternative descriptions are based on preliminary design only. Projects normally have minor design changes during the final design phase—after the environmental process is complete, but prior to construction. A full description of the Project alternatives is provided in the Environmental Assessment.
2.1 NO-BUILD ALTERNATIVE

The No-Build Alternative is evaluated and documented for the purpose of providing a basis of comparison with the build alternatives. The No-Build Alternative would leave the interchange in place, in its existing condition. Fern Valley Road and Highway 99 would not change their current alignment or roadway design. There would be no major changes to the highway. Routine maintenance would be continued; and short-term minor safety improvement activities that support continued operation of the existing roadway would occur.

2.2 BUILD ALTERNATIVES

The two build alternatives are almost the same west of I-5. The design of the interchange is also essentially the same. Only minor shifts in alignment would differ at these locations. However, east of I-5, the alternatives are very different in alignment and design. Figures 2 through 7 (end of section) show the two build alternatives and associated cross-sections.

2.2.1 Fern Valley Thru Alternative

West of I-5, the Fern Valley Thru Alternative generally follows the existing alignment of Fern Valley Road. East of I-5, the Fern Valley Thru Alternative would run parallel to and about 250 feet north of the existing alignment of Fern Valley Road, reconnecting to Fern Valley Road at Breckinridge Drive. S. Phoenix Road would remain along its existing alignment. N. Phoenix Road would be relocated along all new alignment northeast of existing N. Phoenix Road, reconnecting with the existing road near Campbell Road.

The interchange would be a new interchange design, the Crossing Diamond Interchange (CDI; also known as the Diverging Diamond Interchange). With this type of interchange, drivers are directed to the left side of the bridge to cross the interstate (see inset). This allows drivers to make “free” left turns onto the interchange ramps. Two traffic lanes would be provided in each direction for eastbound and westbound traffic.

Highway 99 would be two lanes in each direction. Fern Valley Road would also be two lanes in each direction, but would turn into a one-way road just west of Bear Creek—westbound traffic would follow Fern Valley Road and eastbound traffic would use E. Bolz Road. Realigned N. Phoenix Road would be two lanes in direction until it tapers to reconnect to existing N. Phoenix Road near Campbell Road. Existing Fern Valley Road and S. Phoenix Road would remain 2-lane roads.
Signals would be located at the following intersections:

- West and east interchange ramps
- Highway 99/Fern Valley Road
- Highway 99/E. Bolz Road
- Fern Valley Road/Luman Road/Stores at Exit 24 access
- Realigned Fern Valley Road/N. Phoenix Road
- Realigned N. Phoenix Road intersection with Home Depot

Medians would be installed:

- On Highway 99 from about 500 feet north of Cheryl Lane to E. Bolz Road.
- On Fern Valley Road from the southbound ramps to Luman Road and intermittently between Luman Road to Highway 99 as needed for access control.
- On Fern Valley Road from Luman Road to the southbound interchange ramp.
- Between the interchange ramps.
- On realigned Fern Valley Road from the interchange to the signal at N. Phoenix Road.
- On realigned Fern Valley Road from the signal at N. Phoenix Road to Breckinridge Drive.
- On S. Phoenix Road from the realigned Fern Valley Road/N. Phoenix Road signal to Furry Road.

Bikes on Highway 99 would be accommodated on 5-foot shoulders. Bike lanes throughout the rest of the Project would be at least 6 feet wide, with occasional variations from 5 to 8-feet at some locations. Bike lanes would be designated by pavement markings. Pedestrians would be accommodated by 6-foot sidewalks on both sides of Highway 99, E. Bolz Road, Fern Valley Road west of I-5, realigned Fern Valley Road east of I-5, and realigned N. Phoenix Road.

The following roads would become cul-de-sacs:

- Existing Fern Valley Road west of S. Phoenix Road; however, the cul-de-sac includes connections to the last driveway adjacent to Texaco.
- The east leg of the existing Fern Valley Road/N. Phoenix Road intersection
- Existing N. Phoenix Road west of the existing Peterbilt access
- The north end of Pear Tree Lane

2.2.2 N. Phoenix Thru Alternative

The design of the N. Phoenix Thru Alternative would be essentially the same as the Fern Valley Thru Alternative west of I-5. The only slight difference is that the N. Phoenix Thru alignment must skew slightly north in order to connect with the new interchange alignment. East of I-5, the N. Phoenix Thru Alternative would turn north generally paralleling the existing N. Phoenix Road. The new road would be located just east and then north of Home Depot, and would reconnect with the existing N. Phoenix Road near Campbell Road. Existing Fern Valley Road would be accessed via a new roadway from...
the existing Fern Valley Road/N. Phoenix Road intersection to a new major intersection at Home Depot.

The design of the CDI would be essentially the same as the interchange for the Fern Valley Thru Alternative. The only difference is that the N. Phoenix Thru CDI would be located slightly north of the existing Fern Valley Road interchange structure in order to connect with the new N. Phoenix Road alignment.

The typical roadway sections for this alternative are the same as the Fern Valley Thru Alternative west of I-5, for the interchange, and along realigned N. Phoenix Road. East of I-5, existing Fern Valley Road and extended S. Phoenix Road would be one lane in each direction. The Home Depot access road would be two lanes.

Signals would be located at the following intersections:
- West and east interchange ramps
- Highway 99/Fern Valley Road
- Highway 99/E. Bolz Road
- Fern Valley Road/Luman Road/Stores at Exit 24 access
- Realigned Fern Valley Road/N. Phoenix Road
- Realigned N. Phoenix Road intersection with Home Depot

Medians would be installed at the following locations:
- On Highway 99 from about 500 feet north of Cheryl Lane to E. Bolz Road.
- On Fern Valley Road from the southbound ramps to Luman Road and intermittently between Luman Road to Highway 99 as needed for access control
- On Fern Valley Road from Luman Road to the southbound interchange ramp
- Between the interchange ramps
- On realigned N. Phoenix Road from the interchange to the Home Depot/extended S. Phoenix Road intersection

The following roads would become cul-de-sacs:
- Existing Fern Valley Road west of S. Phoenix Road; however, the cul-de-sac includes an access to Pear Tree Lane
- Existing N. Phoenix Road west of the existing Peterbilt access
Map Features

- Roadway Alignment
- Interchange Area Alignment
- Traffic Signals

Source: ODOT
URS Corporation

This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.
This figure reflects conceptual design, and is subject to change. As the project is refined, some changes may occur.
Figure 4

S. Phoenix Road:
Typical Cross-Section

September 2007
N. Phoenix Road:
Typical Cross-Section

Figure 5
September 2007
Highway 99: Typical Cross-Section

Figure 6

September 2007
3. METHODOLOGY

The methods used to complete the technical report are generally consistent with portions of the American Society for Testing and Materials (ASTM) Standard E 1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, but were not meant to completely fulfill those requirements. The ASTM practice is intended primarily as an approach to identifying potential sources of contamination that could impact the API or that construction of the selected alternative could exacerbate and cause additional liability to the ODOT. An API was defined for the Project and depicted in Figure 8 (see section 5).

No hazardous materials assessment can wholly eliminate uncertainty regarding the potential for environmental conditions in connection with the Project. Evaluating hazardous materials impacts is intended to reduce, but not eliminate uncertainty regarding the existence of, environmental conditions in connection with the Project.

The scope of work for this report specifically did not include an evaluation of regulatory compliance, the testing of soil or groundwater, and surveys or sampling for asbestos, lead paint, drinking water, or radon. The methods used during this investigation are further discussed below.

A map was developed identifying the API and the two build alternatives. This map was submitted to Environmental Database Resources, Inc. (EDR), of Southport, Connecticut. EDR reviewed the applicable regulatory agency databases within specific radii around the alternatives to identify properties or facilities that may have the potential to adversely affect environmental conditions along the alignment alternatives. The databases were searched for known or potential hazardous waste sites or landfills, and properties or facilities currently under investigation for potential environmental violations. EDR reviewed the pertinent individual EPA, DEQ, and OSFM databases to generate a summary database report (the EDR Report) (EDR, 2007).

Sites identified in the EDR Report were further screened for distance and hydrologic position relative to the alternatives. Groundwater flow direction was assumed to follow topography and flow towards major surface water bodies unless specific information was otherwise available. Based on this review, an initial list of sites that had the potential to impact soils and/or groundwater beneath the API was developed. In addition, the DEQ provides additional site-specific information online (Section 4). These online databases were also reviewed.

A drive-by survey was conducted on May 20, 2007 from public access areas and from the public right-of-way. Detailed engineering design drawings for the alternatives were reviewed to assess the locations of sites listed in the EDR Report compared to the two build alternatives. On-site inspections or interviews were not conducted on sites currently adjacent to or in the pathway of the alternatives. During the drive-by survey,
locations of the sites listed in the EDR Report were field verified and correctly marked on the engineering design drawings.

Readily available historical aerial photographs of the API were obtained from the University of Oregon and reviewed. Aerial photographs dated 1939, 1952, 1960, 1979, and 1994 were used to obtain information concerning past land use practices.

A list of the EDR sites, which are on the LUST and ECSI databases, was compiled. This list was submitted to the DEQ offices in Medford and Coos Bay, Oregon for a file review. The files located at the DEQ office in Medford, Oregon were reviewed on May 21, 2007. Copies of portions of files, including relevant analytical results, tables, figures, and findings, were made. The files at the DEQ office in Coos Bay, Oregon were minimal and were therefore copied entirely.

The OSFM hazardous substance incident online database was reviewed for additional information concerning the OR HAZMAT listings on the EDR Report.

Based on information included within or obtained from the EDR Report, the drive-by survey, DEQ files, aerial photographs, and OSFM online database, the initial list of potential hazardous materials sites was narrowed down to 25 Sites of Concern. A qualitative ranking system for the Sites of Concern was developed based on the level of concern for contamination to impact each alternative. The potential was listed as low, moderate or high.

- A low concern indicates the potential for hazardous materials to impact the soil and groundwater beneath the alternative is insignificant, and no further action is needed.

- A moderate concern indicates the potential for hazardous materials to impact the alternative is present, and further action is recommended. A moderate ranking is also assigned to sites that have not been fully investigated, or limited information was available for review.

- A high concern indicates hazardous materials have a high potential to impact the alternative, and further action is recommended.

Finally, when applicable, each Site of Concern was also correlated with each alternative, as the impact of each site may vary with each alternative route.

4. AGENCY COORDINATION AND INVOLVEMENT

The following EPA and state databases of known or potential hazardous waste sites or landfills, and sites currently under investigation for environmental violations for the specified search radii were included within the EDR Report.
A map was first developed which included a combination of the alternatives transposed onto one map. URS then requested that EDR research the federal and state databases for sites listed within a 1-mile, ½-mile, or ¼-mile radius, or that were listed within the Project area (partial or full acquisitions). The specific search radii are included in Section 4.4.

4.1 FEDERAL

The federal databases consulted for hazardous material sites included the following:

- Federal EPA National Priority List (NPL) (Federal Superfund): The NPL is a subset of Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas.


- CERCLIS is the official repository for site and non-site specific data in support of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). It contains information on hazardous waste site assessment and remediation from 1983 to present. CERCLIS information is used to report official Superfund accomplishments to Congress and the public, help EPA Regional managers evaluate the status and progress of site cleanup actions, track Superfund Comprehensive Accomplishment Plans, and communicate planned activities and budgets.

- Resource Conservation and Recovery Information System (RCRIS): Generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information concerning their activities to state environmental agencies, which in turn provide the information to regional and national EPA offices in accordance with the Resource Conservation and Recovery Act (RCRA). RCRIS is used by the EPA to support its implementation of the RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984. The system is primarily used to track handler permit or closure status, compliance with Federal and state regulation development, waste handler inventorying, corrective action, regulation enforcement, facility management, and environment program progress assessment. Generators are divided into three classes based on quantities of waste generated and stored on-site.
  - RCRA-CESQG (Conditionally Exempt Generator): Sites generate in one month 2.2 pounds or less of acute hazardous wastes, or 220 pounds or less of hazardous wastes, or at any time accumulate 2,200 pounds or less of hazardous waste on-site.
RCRA-SQG (Small Quantity Generator): Sites generate in one month more than 220 pounds but less than 2,200 pounds of hazardous wastes, or at any time accumulate more than 2,200 pounds of hazardous waste on-site.

RCRA-LQG (Large Quantity Generator): Sites generate in one month 2,200 pounds or more of hazardous waste, or more than 2.2 pounds of acute hazardous waste, or more than 220 pounds of spill cleanup debris containing an acute hazardous waste, or at any time accumulate more than 2.2 pounds of acute hazardous waste on-site.

4.2 STATE

The state databases consulted for hazardous material sites included the following:

- Environmental Cleanup Site Information (ECSI): The ECSI list contains sites that are or may be contaminated and may require cleanup. DEQ adds these sites to the Confirmed Release List (CRL) and the Confirmed Release List Inventory (CRLI) when it determines they meet the respective criteria for listing.

- Leaking Underground Storage Tank (LUST): The LUST list is a compilation of site names and addresses, and contains information on reported leaking underground storage tanks.

- Underground Storage Tank (UST): The UST list is a compilation of site names, addresses, and tank information for sites with UST’s registered with the DEQ. This database does not indicate whether a spill or release has or has not occurred.

- Solid Waste Facilities/Landfill Sites (SWF/LF): The SWF/LF list is an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

- Spill Data (OR SPILLS): A spill was reported to the DEQ; however, a hazardous material may or may not have been released.

- Hazardous Material Incidents (OR HAZMAT): HAZMAT listings are incidents reported to the OSFM by emergency responders. A hazardous material may or may not have been released.

In addition, the following DEQ databases provide additional site-specific information online. These web sites were also reviewed for the Sites of Concern:

- DEQ ECSI database:
  http://www.deq.state.or.us/wmc/ECSI/ecsiquery.asp?listtype=ecsilist.asp&listtitle=E CSI+Database
4.3 LOCAL

Hazardous material incidences responded to by the City of Phoenix Fire Department are also listed in the OR HAZMAT database.

4.4 Search Radii

The specific radii used by EDR for each database were as follows:

- Within 1-mile radius from the alternatives:
  - NPL
  - Proposed NPL
  - CORRACTS
  - ECSI

- Within ½-mile radius from the alternatives:
  - CERCLIS
  - CERCLIS/No Further Response Action Planned (NFRAP)
  - LUST
  - Solid Waste Facilities/Landfill Sites

- Within ¼-mile radius from the alternatives:
  - RCRA Generators (Small and Large)
  - USTs
  - OR HAZMAT
  - OR SPILLS

5. AFFECTED ENVIRONMENT

The affected environment presented herein includes known or potential hazardous material sites (Sites of Concern) within the API. Sites of concern are identified to show their relationship to the alternatives under consideration. The following includes a summary of the identified Sites of Concern.

For the Project, the affected environment consists of 25 Sites of Concern. These sites were identified as having been impacted by releases of hazardous materials and/or possessing hazardous waste that may impact the Project. The Sites of Concern including
their address, location and distance from with the two build alternatives, ranking of concern, database listings, and database status are listed on Table 5-1.

The Sites of Concern are located on Figure 8 as grey dots. Figure 8 shows the API, which includes the entire Project area.

5.1 WEST OF I-5

Seventeen Sites of Concern were identified to the west of I-5. The issues of concern and current status for the 17 sites are summarized below.

- Site #1: Glenwood Business Park  
  117 W. Glenwood Road  
  ECSI #4333

A file was located at the DEQ offices in Medford or Coos Bay for this ECSI file. According to the available information on the ECSI website, this site may be a former manufactured gas plant, which was discovered in late 2004, when a concrete truck fell through the ground into a manufactured gas plant waste containing vault. In 2005, an undetermined quantity of manufactured gas plant waste was mixed with sawdust and soil during the cleanup effort. The material was being stockpiled on the site in a covered stockpile. On December 29, 2006, the DEQ issued a No Further Action (NFA) determination for the site. No other information was available.

- Site #2: D & S Harley Davidson Inc. and Jack T. Walker  
  3846 S. Pacific Highway  
  UST #11038 and AST #77105

One gasoline AST and one decommissioned UST were listed for this address. No releases or spills of hazardous materials were listed for the site.
Map Features
- Sites of Concern
- Area of Potential Impact

Source: URS, ODOT

Area of Potential Impact Including Sites of Concern

Figure 8
November 2007

Not to Scale
<table>
<thead>
<tr>
<th>Site #</th>
<th>Site Name/Notes</th>
<th>Address</th>
<th>Databases</th>
<th>Information and Status</th>
<th>Distance of the Site from the Alternative</th>
<th>Concern</th>
<th>Distance of the Site from the Alternative</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Glenwood Business Park</td>
<td>117 W. Glenwood Road</td>
<td>ECSI</td>
<td>Former Manufactured Gas Plant - Southern Oregon Gas Co. ECSI: NFA on 29-Dec-06.</td>
<td>3,750 feet to NW</td>
<td>Low</td>
<td>3,750 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>D &amp; S Harley Davidson Inc. and Jack T. Walker</td>
<td>3846 S. Pacific Highway</td>
<td>AST, UST</td>
<td>Gasoline AST: One decommissioned UST.</td>
<td>1,320 feet to NW</td>
<td>Low</td>
<td>1,320 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>3</td>
<td>Western Mechanical Inc.</td>
<td>3847 S. Pacific Highway</td>
<td>UST</td>
<td>One decommissioned UST.</td>
<td>1,390 feet to NW</td>
<td>Low</td>
<td>1,390 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>4</td>
<td>Bear Creek Valley Sanitary Authority</td>
<td>3915 S. Pacific Highway</td>
<td>UST</td>
<td>One decommissioned UST.</td>
<td>1,200 feet to NW</td>
<td>Low</td>
<td>1,200 feet to NW</td>
<td>Low</td>
</tr>
<tr>
<td>5</td>
<td>OR HAZMAT Release</td>
<td>3945 S. Pacific Highway</td>
<td>OR HAZMAT</td>
<td>Three active USTs and five decommissioned USTs. LUST: NFA issued on 14-Aug-01. OR HAZMAT: On 1-Jul-93, A truck being towed spilled motor oil. No additional information.</td>
<td>Partial acquisition at S and W property boundaries</td>
<td>Moderate</td>
<td>Partial acquisition at S and W property boundaries</td>
<td>Moderate</td>
</tr>
<tr>
<td>6</td>
<td>Phoenix Circle K / ConocoPhillips #162 (Former Phoenix Exxon #9290)</td>
<td>800 N. Main Street</td>
<td>UST, LUST, OR HAZMAT</td>
<td>Three active USTs and five decommissioned USTs. LUST: NFA issued on 14-Aug-01. OR HAZMAT: On 1-Jul-93, A truck being towed spilled motor oil. No additional information.</td>
<td>Partial acquisition at S and W property boundaries</td>
<td>Moderate</td>
<td>Partial acquisition at S and W property boundaries</td>
<td>Moderate</td>
</tr>
<tr>
<td>7</td>
<td>Residences</td>
<td>814 and 816 E. Bolz Road</td>
<td>None</td>
<td>Possible hazardous building materials and heating oil USTs associated with two residences</td>
<td>Full to partial acquisitions</td>
<td>High</td>
<td>Full to partial acquisitions</td>
<td>High</td>
</tr>
<tr>
<td>8</td>
<td>OR HAZMAT Release</td>
<td>808 E. Bolz Road</td>
<td>OR HAZMAT</td>
<td>On 27-July-93: Less than one gallon of an unknown chemical was released when a saddle tank on a tractor was overfilled. The responsible party cleaned up the spill.</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
</tr>
<tr>
<td>9</td>
<td>Phoenix Automotive Center</td>
<td>611 N. Main Street</td>
<td>AST</td>
<td>Used oil AST.</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
<td>Partial acquisition at E property boundary</td>
<td>Low</td>
</tr>
<tr>
<td>10</td>
<td>R C Auto Parts Inc.</td>
<td>612 N. Main Street</td>
<td>AST</td>
<td>Sodium hydroxide AST.</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
<td>Partial acquisition at W property boundary</td>
<td>Low</td>
</tr>
<tr>
<td>11</td>
<td>OR HAZMAT Release</td>
<td>610 N. Main Street</td>
<td>OR HAZMAT</td>
<td>On 4-Apr-05, Phoenix Fire Department was notified of a green liquid present in Bear Creek. Samples were collected, and a test with SensIR indicated 99.98 percent water. In addition, the pH was 7.5.</td>
<td>Release potentially within the alternative</td>
<td>Low</td>
<td>Release potentially within the alternative</td>
<td>Low</td>
</tr>
<tr>
<td>12</td>
<td>Phoenix Discount Gas / Bi-Mor Stations, Inc. #2</td>
<td>608 N. Main Street</td>
<td>UST, LUST</td>
<td>Two active USTs. LUST: Cleanup started on 7-Dec-98, but an NFA has not been issued.</td>
<td>39 feet to S-SE</td>
<td>Low</td>
<td>39 feet to S-SE</td>
<td>Low</td>
</tr>
<tr>
<td>13</td>
<td>OR HAZMAT Release</td>
<td>457 Bear Creek Drive</td>
<td>OR HAZMAT</td>
<td>On 24-Oct-94: Paint spilled in the roadway. No additional information.</td>
<td>692 feet to S-SE</td>
<td>Low</td>
<td>692 feet to S-SE</td>
<td>Low</td>
</tr>
<tr>
<td>14</td>
<td>Ken's Automotive</td>
<td>101 N. Main Street</td>
<td>LUST</td>
<td>LUST: NFA issued on 6-Mar-89.</td>
<td>1,630 feet to SW</td>
<td>Low</td>
<td>1,630 feet to SW</td>
<td>Low</td>
</tr>
<tr>
<td>15</td>
<td>Phoenix Elementary School: Heating Oil Tank</td>
<td>215 N. Rose Street</td>
<td>LUST</td>
<td>LUST: Cleanup started on 13-May-95, but an NFA has not been issued.</td>
<td>1,310 feet to SW</td>
<td>Low</td>
<td>1,310 feet to SW</td>
<td>Low</td>
</tr>
<tr>
<td>16</td>
<td>Former Special Products of Oregon</td>
<td>306 S. C Street</td>
<td>RCRA-SQG, ECSI</td>
<td>No RCRA violations found. ECSI: NFA required regarding the oil spill.</td>
<td>3,280 feet to SW</td>
<td>Low</td>
<td>3,280 feet to SW</td>
<td>Low</td>
</tr>
<tr>
<td>17</td>
<td>Lindvig Machine Shop</td>
<td>4612 S. Pacific Highway</td>
<td>ECSI</td>
<td>The DEQ recommends that further assessment of the site is necessary as adequate soil and groundwater sampling has not been conducted.</td>
<td>2,620 feet to S</td>
<td>Low</td>
<td>2,620 feet to S</td>
<td>Low</td>
</tr>
</tbody>
</table>
## TABLE 5-1: HAZARDOUS MATERIALS SITES OF CONCERN AND IMPACT RANKING

<table>
<thead>
<tr>
<th>Site #</th>
<th>Site Name</th>
<th>Address</th>
<th>Databases</th>
<th>Information and Status</th>
<th>Fern Valley Thru</th>
<th>N. Phoenix Thru</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Sites Located East of I-5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>OR SPILLS Release</td>
<td>4127 Fern Valley Road</td>
<td>OR SPILLS</td>
<td>On 22-Apr-94: One quart of crankcase oil was spilled when a backhoe tipped over. No additional information.</td>
<td>Adjacent to NE</td>
<td>Low</td>
</tr>
<tr>
<td>19</td>
<td>PETRO Truck Stop and Shopping Center</td>
<td>3730 Fern Valley Road</td>
<td>UST, LUST, AST, OR SPILLS, OR HAZMAT</td>
<td>Eight OR HAZMAT, two LUST, and five OR SPILLS incidences are listed for the site. The most significant releases occurred on 4-Nov-95 (OR SPILL #95-2202 &amp; LUST #15-94-0058) and 23-Nov-03 (OR SPILL #03-2607 &amp; LUST #15-03-2468). In 1993, a 3-inch diesel fuel pipe was severed by a contractor, and 8,970-gallons were released to the subsurface. Then in 2003, an additional spill occurred when a product pipe leaked approximately 2,900 gallons diesel to the subsurface. The two LUST listings resulted from the two releases. OR HAZMAT and remaining three OR SPILLS incidences were related to small surface spills. LUST #15-94-0058: Cleanup started on 10-Jan-95; NFA issued on 18-Aug-03; LUST #15-03-2468: Cleanup started on 23-Nov-03, but an NFA has not been issued; UST #1812: 6 active USTs and 9 decommissioned USTs; UST #11615: 3 active USTs.</td>
<td>20 feet to E</td>
<td>High</td>
</tr>
<tr>
<td>20</td>
<td>Former Giant Cardlock Station</td>
<td>3785 Fern Valley Road</td>
<td>UST, LUST</td>
<td>Three decommissioned USTs; TPH allowed remaining on-site at a maximum concentration of 3,135 mg/kg; LUST: NFA issued on 15-Jul-91.</td>
<td>Adjacent to NE</td>
<td>Moderate</td>
</tr>
<tr>
<td>21</td>
<td>DSU Peterbilt &amp; GMC Inc.</td>
<td>3727 N Phoenix Road</td>
<td>UST, RCRA-CESQG</td>
<td>Used oil AST, No RCRA violations found.</td>
<td>Partial acquisition at NE corner of the property and S property boundary</td>
<td>Low</td>
</tr>
<tr>
<td>22</td>
<td>Arrowhead Conice Orchard - UST</td>
<td>2984 N. Phoenix Road</td>
<td>UST, LUST</td>
<td>One decommissioned UST; LUST: No Further State Action (NFA) issued on 22-Mar-98.</td>
<td>100 feet to N</td>
<td>Low</td>
</tr>
<tr>
<td>23</td>
<td>Farm Buildings</td>
<td>4059 Fern Valley Road</td>
<td>None</td>
<td>Possible heating oil and fuel oil UST associated with the farm buildings.</td>
<td>Acquisition through the center of the tax lot between the two groups of buildings</td>
<td>Moderate</td>
</tr>
<tr>
<td>24</td>
<td>Orchard Field</td>
<td>3775 N. Phoenix Road</td>
<td>None</td>
<td>Possible elevated concentrations of herbicide and pesticides in the surface soil.</td>
<td>Acquisition through the center of the tax lot</td>
<td>High</td>
</tr>
<tr>
<td>25</td>
<td>Farm Buildings</td>
<td>3381 N. Phoenix Road</td>
<td>None</td>
<td>Possible heating oil and fuel oil UST and hazardous building materials associated with the farm buildings.</td>
<td>Acquisition through the SW corner of the tax lot</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
Site #3: Western Mechanical Inc.
3847 S. Pacific Highway
UST #2786

One decommissioned UST is listed for this site. No releases or spills of hazardous materials were listed for the site.

- Site #4: Bear Creek Valley Sanitary Authority
3915 S. Pacific Highway
UST #8363

One decommissioned UST is listed for this site. No releases or spills of hazardous materials were listed for the site.

- Site #5: OR HAZMAT Release
3945 S. Pacific Highway
OR HAZMAT #920088

On April 29, 1992, a hazardous materials team from an unknown fire department discovered potassium, muriatic acid, ephedrine, acetone, and red devil dye at this address. No additional information was available at the OSFM website; however, from experience, this appears to be from a residential drug laboratory.

- Site #6: Phoenix Circle K / ConocoPhillips #162 (Former Phoenix Exxon #9290)
800 N. Main Street
LUST #15-89-0033, UST #2430, and OR HAZMAT #930316

According to the DEQ NFA letter, four fuel USTs were removed at this active gasoline service station in September 1989. Petroleum contaminated soil (PCS) and petroleum contaminated groundwater (PCG) were discovered during the decommissioning and attributed to possible overfilling of the USTs. Approximately 200 cubic yards of PCS were excavated and transported off-site to the Jacksonville Landfill.

After excavation work had been completed, six final confirmation soil samples were collected. BTEX compounds and total petroleum hydrocarbons (TPH) were detected at maximum concentrations of 6.9 milligrams per kilogram (mg/kg), 56 mg/kg, 24 mg/kg, 250 mg/kg, and 54 mg/kg, respectively. These maximum detections were in soil sample Site 7, which was collected approximately 45 feet to the northeast of N. Main Street and 125 feet to the northwest of Fern Valley Road.

Elevated concentrations of benzene [1,700 micrograms per liter (ug/L)], toluene (2,800 ug/L), and total xylenes (10,000 ug/L) were detected in a groundwater sample collected from the UST excavation. Therefore, the DEQ recommended installing two groundwater monitoring wells. One monitoring well was installed in the UST excavation, and an additional well was installed approximately 20 feet
down gradient of the UST excavation to the east (towards Bear Creek). Groundwater samples were collected over four quarterly monitoring events from March 1990 to February 1991. BTEX compounds were not detected above the laboratory reporting limits in the down gradient monitoring well. Elevated benzene concentrations were detected during the first two quarterly monitoring events; however, the benzene concentrations were below the laboratory reporting limit during the last two events.

On November 2, 1991, the DEQ issued a NFA letter in which the DEQ stated that it had been determined that the site appeared to be cleaned up in accordance with state regulations.

After the USTs were removed in 1989, three USTs were installed on the eastern corner of the site along Fern Valley Road. The installation date is unknown.

According to the OR HAZMAT database, in July 1993, a release occurred at 800 N. Main Street when a truck being towed spilled motor oil. No additional information was available from the OSFM.

- **Site #7:** Residences  
  814 and 816 E. Bolz Road

  Three residences are located at the above address range. According to the aerial photograph, residences have been on the tax lots since at least the 1960s. Due to the date of construction of the buildings, hazardous building materials may be present within the on-site structures and may include ACM, lead-containing paints, PCB light ballasts, mercury vapor-containing fluorescent light tubes, and mercury halide lights. In addition, heating oil USTs or LUSTs could potentially be present.

- **Site #8:** OR HAZMAT Release  
  808 E. Bolz Road  
  OR HAZMAT #930317

  On July 27, 1993, less than 1-gallon of an unknown chemical was released when a saddle tank on a tractor was overfilled. The responsible party cleaned up the spill. No additional information was available.

- **Site #9:** Phoenix Automotive Center  
  611 N. Main Street  
  AST #56994

  One used oil aboveground storage tank (AST) is reportedly present at the site. No releases or spills of hazardous materials were listed for the site. In addition, during the drive-by survey, multiple below-grade hydraulic hoists were observed inside the automotive center. According to the aerial photographs, the automotive center is less than 28 years old.
Site #10: R C Auto Parts Inc.
612 N. Main Street
AST #9110

One AST containing sodium hydroxide is reportedly present at the site. No releases or spills of hazardous materials were listed for the site.

Site #11: OR HAZMAT Release
610 N. Main Street
OR HAZMAT #050148

According to the EDR Report, on April 4, 2005, The Phoenix Fire Department was notified of a green liquid being present in Bear Creek. The Fire Department personnel collected samples, and a test indicated 99.98 percent water and a pH of 7.5. No additional sampling results were discussed in the EDR Report.

Site #12: Phoenix Discount Gas / Bi-Mor Stations, Inc. #2
608 N. Main Street
LUST #15-98-0082, and UST # 3409

Two active 8,000-gallon capacity gasoline USTs are present at the site. On December 7, 1998, a gasoline release from the UST system was reported to the DEQ. The release was detected during UST upgrade activities, which included the installation of an internal lining into the two USTs. During the upgrade work, the tops of the USTs were exposed, and PCS was observed around the fill pipe of one of the USTs. According to the DEQ, the source of the release appeared to be from over-filling, as no spill buckets were present on the USTs. The DEQ files also indicate that a third inactive UST (4,000-gallon capacity) was to be decommissioned in place. No follow-up documentation pertaining to this decommissioning was found in the LUST file.

Approximately 12 cubic yards of PCS was excavated and transported off-site to Dry Creek Landfill in Medford, Oregon. On December 11, 2007, three confirmation soil samples were collected from the side walls of the excavation, and gasoline-range hydrocarbons (THI-Gx) were detected at a maximum concentration of 2.6 mg/kg, which is below the most stringent DEQ Risk-Based Concentrations (RBCs). The samples were not analyzed for any gasoline constituents. Groundwater was not encountered during the excavation activities. The LUST listing has not received a NFA determination from the DEQ.

Site #13: OR HAZMAT Release
457 Bear Creek Drive
OR HAZMAT #940475

On October 24, 1994, a paint spill occurred in the roadway. No additional information was available.
• Site #14: Ken's Automotive  
101 N. Main Street  
LUST #15-89-0011  

Limited information was available in the DEQ file. A release was reported to the DEQ on March 6, 1989 as a complaint when PCS and a slight sheen were observed in an excavation. A soil sample was reportedly collected, and BTEX compounds were not detected above the laboratory reporting limit. The DEQ issued a NFA determination for the site in March 1989.

• Site #15: Phoenix Elementary School: Heating Oil Tank  
215 N. Rose Street  
LUST #15-95-0025  

On May 5, 1995, one 1,000-gallon capacity heating oil UST was removed from the elementary school. During the decommissioning, PCS were observed, and the release was reported to the DEQ. Approximately 100 tons of PCS were excavated and transported off-site to South Stage Landfill in Medford, Oregon. Groundwater was not encountered during the decommissioning. Only one confirmation soil sample was collected, and TPH was detected at a concentration of 30 mg/kg. The DEQ has not issued a NFA determination for the LUST listing.

• Site #16: Former Special Products of Oregon  
306 S. C Street  
RCRA-SQG #ORD046266433 and ECSI #750  

The site is currently vacant. Special Products of Oregon operated a wood products facility at the site from the 1970s until 1993. The site is listed as a RCRA-SQG; however, no RCRA violations were reported. The site is also listed on the ECSI database; information from the DEQ ECSI file review is summarized below.

In July 1996, during a Phase I Environmental Site Assessment (ESA), stained soil was observed near the southeast corner of the site. Large equipment purchased to run a conveyor system had been stored in that area for approximately three years. BWR Associates Inc. (BWR), who completed the Phase I ESA, recommended further investigation was required into the extent of the suspect PCS.

In July 1996, BWR collected four surface soil samples to characterize the stained soil. The analytical results indicated that the stained soil was impacted by heavy oil-range hydrocarbons at a maximum concentration of 38,000 mg/kg. Metals analysis of the initial soil samples indicated that the soil was non-hazardous. PCBs were also not detected in the initial soil samples above the laboratory reporting limits.

In September 1996, BWR oversaw the excavation of approximately 24 cubic yards PCS to approximately 3-feet below ground surface (bgs). Groundwater was
encountered at the bottom of the excavation, but a petroleum hydrocarbon sheen was not observed. Six confirmation soil samples were collected in the excavation at the soil/groundwater interface. TPH was detected (268 mg/kg) in one sample, which was collected from the southwest corner of the excavation, at a concentration exceeding the site’s cleanup level of 100 mg/kg (Level I Soil Matrix Standard). The PCS was transported off-site to Copeland Paving, Inc. for thermal treatment.

Due to the cleanup level exceedance, further investigation was conducted. Seven soil borings were drilled, and twelve soil samples collected from the borings at 1 to 3-feet bgs were analyzed for TPH. Based on the analytical results, TPH was detected in one soil sample (161 mg/kg) at a concentration exceeding the cleanup level.

The site entered into the DEQ Voluntary Cleanup Program on November 5, 1996, for a review of the cleanup activities. After discussions with the DEQ, it was determined that the cleanup level for this type of industrial site would actually be 500 mg/kg (Level II Soil Matrix Standard). The DEQ requested that an additional sample be collected and analyzed for polycyclic aromatic hydrocarbons (PAHs). In November 1996, one additional soil sample was collected at 1-foot bgs and analyzed for PAHs. None of the PAHs were detected above the laboratory reporting limit.

On April 7, 1997, the DEQ issued a NFA letter after concluding that the concentrations of TPH remaining in the soil were below the Level II Soil Matrix Standard used by the LUST program that would be appropriate for this location. In addition, the concentrations of metals, PCBs, and PAHs were either below detectable levels or below the applicable cleanup levels.

Site #17: Lindvig Machine Shop
4612 S. Pacific Highway
ECSD #2286

The site has been occupied by an engine rebuilding and machine shop for approximately 13 years. According to the DEQ file, the site was brought to the DEQ’s attention in 1998 based on a referral from the DEQ’s Hazardous Waste Section. The referral had noted that a consultant conducting an ESA on an adjoining parcel observed some “oily water in a ditch or pool” on the Lindvig property.

According to the file, Lindvig utilizes, for parts cleaning, a petroleum naptha solvent parts washer, a detergent based spray cleaning system, and an alkaline hot tank. Parts are finally rinsed using a pressure washer at the equipment rinse area. Wastewater from the equipment rinse area is directed to an adjoining four-part oil/water separator (OWS). Floating materials trapped within the OWS are periodically skimmed off using absorbent pads. Heavier materials settle to the bottom of the OWS and are periodically removed using a shovel. The sludge
generated from the OWS, spray cleaner, and hot tank are characterized as RCRA hazardous waste. Until 1998, the wastewater from the OWS was allowed to discharge to on-site soils via a shallow perforated drain line. The DEQ file did not indicate that Lindvig had disposed of the sludges as RCRA hazardous waste, and the address is not listed as a RCRA-CESQG or -SQG. In 1998, Lindvig installed a pump and new line to route the wastewater to a slop sink and then the sanitary drain.

Adequate soil and groundwater sampling has not been conducted at the site. The DEQ recommends that further assessment of the site is necessary.

5.2 INTERCHANGE AREA

No Sites of Concern were identified in the Interchange Area.

5.3 EAST OF I-5

Eight Sites of Concern were identified to the east of I-5. The issues of concern and current status for the eight sites are summarized below.

- Site #18: OR SPILLS Release
  4127 Fern Valley Road
  OR SPILLS #94-612

  In 1994, reportedly 1-quart of crankcase oil was spilled when a backhoe tipped over. No additional information was available.

- Site #19: PETRO Truck Stop (Formerly the Pear Tree Center)
  3730 Fern Valley Road
  OR HAZMAT #'s: 910457, 920455, 980649, 950577, 950609, 950515, 900028, and 860126
  OR SPILLS #'s: 94-1763, 95-2202, 03-2607, 06-1969, and 06-2087
  LUST #'s: 15-94-0058 and 15-03-2468
  UST #’s: 8182 (Texaco) and #11615 (Truck Stop)
  AST #018845

  An active Texaco retail gas station and food mart are located on the northwest corner of the site, and the PETRO Truck Stop, which includes fuel islands, offices, scales, and truck wash, is located on the northern portion the site. A shopping center, RV campground, and motel are located on the south portion of the site.

  Both the retail gas station and truck stop have separate UST systems. According to the DEQ, six active USTs are located at the truck stop, and three active USTs
are located at the retail gas station. Nine USTs have been decommissioned at the site.

Eight OR HAZMAT and five OR SPILLS incidences are listed for the active truck shop and retail gas station. The OR HAZMAT and three of the five OR SPILLS incidences were related to surface spills which flowed into the sewer, were cleaned up, or were of small quantities.

The two remaining OR SPILLS incidences, which reportedly occurred on November 2, 1995 (OR SPILL #95-2202) and November 23, 2003 (OR SPILL #03-2607) involved releases of diesel directly to the subsurface. These two OR SPILL incidences are related to LUST listings (#15-94-0058 and #15-03-2468). The two OR SPILL incidences and LUST listings are summarized below.

1) OR SPILL #95-2202 / LUST #15-94-0058: Due to the sale of the property, a subsurface investigation was conducted at the site in October and November 1994, and during the investigation PCS and PCG were encountered. The DEQ was notified of the impacts and issued LUST #15-94-0058.

Excavation of the PCS was conducted; however, on November 2, 1995, during the preparation to replace a concrete slab in one of the fuel bays following soil removal, a diesel fuel line was punctured, which resulted in the release of 8,970-gallon of diesel. The DEQ was notified and a spill report (OR SPILL #95-2202) was issued from PETRO to the DEQ. After the release was stopped, an additional soil and groundwater investigation was conducted from November 10 through November 13, 1995. Free product up to 4-feet in thickness was observed at the site. The investigation indicated that the diesel had migrated down-gradient (northwesterly) up to approximately 160 feet from the source of the release. Free product had reportedly not migrated off-site at the time of this investigation. Initial cleanup activities included product recovery from two monitoring wells and soil excavation at the source area.

Based on the results of the focused investigation, a groundwater remediation system was designed, installed, and put into operation at the site on December 1, 1995. The system design consisted of a groundwater pump and treatment system enhanced with product recovery pumps. The system was shut down in December 1996, as recoverable quantities of free-phase hydrocarbons were no longer detected.

Groundwater is present at depths ranging from 15 to 21 feet bgs. The results of groundwater investigations on-site indicate that groundwater flow is to the west-northwest.

Seven monitoring wells (MW-1 through MW-6) were installed on-site, and three (MW-7 through MW-9) were installed off-site. Quarterly groundwater sampling was conducted from 1996 to 2003. Monitoring wells MW-7 and
MW-8 were abandoned in 2002. According to the available reports in the DEQ file, groundwater sampling has not been conducted since 2003.

During the last four quarterly sampling events in 2002 and 2003, concentrations of diesel, gasoline, PAHs, and BTEX in groundwater samples collected from the wells closest to the west and north property boundaries or off-site were either non-detect or at concentrations slightly above the laboratory reporting limits. In addition, the detections were below the DEQ RBCs for construction & excavation workers encountering groundwater in an excavation.

In 1994 and 1995, soil sample results collected at 19-feet bgs along the north property boundary were below the laboratory reporting limits for diesel and gasoline.

On October 8, 2003, the DEQ issued a NFA letter for LUST #15-94-0058. The DEQ concluded that PCS and PCG remain at the site; however, the concentrations were below the DEQ RBCs for exposure pathways present at the site.

2) OR SPILL #03-2607 / LUST #15-03-2468: On November 23, 2003, approximately 2,900-gallons of diesel were released directly to the subsurface when a fuel line leaked due to equipment failure. The leak occurred at the east side of the truck shop. The release was reported to the DEQ the same day. The DEQ issued the site OR SPILL #03-2607 and LUST #15-03-2468 for this release. The fuel line was fixed, and a follow-up soil and groundwater investigation, including the installation of six borings around the area of the leak, was reportedly conducted; however, the results of the investigation have not been provided to the DEQ at this time. This LUST file remains open, and no remedial activities have occurred at the location of the latest release.

- Site #20: Former Giant Cardlock Station,
  3785 Fern Valley Road
  LUST #15-90-0066 and UST #5137

According to the historical aerial photographs, a gasoline service station was present at 3785 Fern Valley Road from the 1970s until the early 1990s. The entrance to North Phoenix Road off Fern Valley Road was relocated onto the tax lot of the gas station in early 2000s. According to the DEQ files, in June 1990, two 10,000-gallon capacity diesel USTs and one less than 1,000-gallon used oil UST were removed from the facility. The following was observed during the UST decommissioning activities.

- Used Oil UST: Several holes were observed on the UST during its decommissioning, and PCS was noted on the walls and floor of the excavation. Removal of contaminated soils proceeded to 9.6-feet bgs, and one confirmation soil sample was collected. TPH was detected at a concentration
of 11,541 mg/kg at 9.6-feet bgs in the floor of the excavation. Due to the elevated TPH detection, additional excavation was completed in June 1990 to a depth of 15.9 feet bgs, and two confirmation soil samples were collected. TPH was detected in the final two confirmation samples at concentrations of 4 mg/kg and 3 mg/kg.

° Two Diesel USTs: As the USTs were being removed, stained soil was noted on the floor of the excavation and on the southwest wall of the excavation. The contaminated soil was excavated, and confirmation soil samples were collected. TPH was detected in the four confirmation soil samples at concentrations ranging from 12 mg/kg to 3,135 mg/kg.

° Groundwater was not encountered during the decommissioning of the three USTs. However, during the decommissioning activities, “a layer of oil” was reportedly observed to be present around the entire site from the ground surface to approximately 3-feet bgs.

° According to the excavation contractor, 312 cubic yards of PCS was excavated during the decommissioning activities and transported offsite to the South Stage Landfill in Medford, Oregon.

In February 1991, an additional soil investigation, which included the installation of 12 borings, was conducted on the tax lot. Twelve soil samples were collected at depths ranging from 7-feet to 13-feet bgs, and TPH concentrations in the 12 soil samples ranged from 63 mg/kg to 266 mg/kg. According to the TPH-hydrocarbon identification (TPH-HCID) analysis, diesel-range hydrocarbons were detected. A site map within the DEQ file indicated the presence of a “well” at the southwest corner of the tax lot; however, no groundwater sampling results were reported.

On August 16, 1991, the DEQ issued a NFA letter because the site was determined to meet the DEQ Level 2 Soil Matrix Cleanup requirements of 80 mg/kg for gasoline and 500 mg/kg for diesel. However, TPH remains on-site at a maximum detected concentration of 3,135 mg/kg. The DEQ NFA letter does not discuss the 3,135 mg/kg TPH detection. In addition, reports documenting the extent, shallow sampling results, or remediation of the shallow “layer of oil” were not present in the DEQ file.

• Site #21: DSU Peterbilt & GMC Inc.
    3727 N Phoenix Road
    AST #8743, and RCRA-SQG #ORD987185105

One used oil AST is reportedly present at the site. No releases or spills of hazardous materials were listed for the site. In addition, the site is listed as a RCRA-CESQG. According to the EDR Report, the EPA has not issued any RCRA violations to the site.
Site #22: Arrowhead Comice Orchard - UST
2984 N Phoenix Road
LUST # 15-98-0060 and UST #11889

According to the DEQ NFA letter, on October 15, 1998, an 8,000-gallon diesel UST was decommissioned by removal. The UST had been used to fuel the orchard smudge pots. Approximately 15-cubic yards of PCS was removed during the decommissioning activities and stockpiled at the site. A sample was collected from the stockpiled material, and diesel-range hydrocarbons (TPH-Dx) were detected at 30 mg/kg. Based on the low detection, the stockpiled soil was used as backfill.

Groundwater with a slight sheen entered the UST excavation at 4-feet bgs. Four confirmation soil samples were collected from the walls of the UST excavation at the soil water interface. The TPH-Dx results from the four confirmation soil samples ranged from below the laboratory reporting limit to 500 mg/kg, which met the DEQ Level 2 Soil Matrix Cleanup requirement of 500 mg/kg for diesel.

Five groundwater samples were collected to characterize groundwater impacts. The initial groundwater sample was collected from the UST excavation, and benzene, toluene, ethylbenzene, and total xylenes (BTEX) were detected only slightly above the reporting limits at concentrations of 1.2 ug/L, 1.2 ug/L, 1.1 ug/L, and 2.8 ug/L, respectively. In addition, five PAHs were detected in the initial groundwater sample, but the compounds were detected at concentrations below the current most stringent DEQ RBCs. The benzene detection of 1.2 ug/L exceeds only the residential and urban residential DEQ RBCs and is below occupational, construction, and excavation worker DEQ RBCs.

The remaining four groundwater samples were collected from four test pits, which were excavated 10 feet to the north, east, south, and west of the original UST excavation to determine the horizontal extent of possible groundwater impacts. From the BTEX and PAH analysis, benzene was the only compound detected in the four additional groundwater samples above the laboratory reporting limits. Benzene was detected in the four groundwater samples at concentrations of 1.2 ug/L, which exceeds only the residential and urban residential DEQ RBCs as discussed above.

The DEQ agreed that the UST cleanup complied with regulations, and issued a NFA notice on March 22, 1999.

Site #23: Farm Buildings
4059 Fern Valley Road

Multiple farm and/or residential buildings are located at the above address. According to the aerial photographs, buildings have been present at these locations since at least 1939. Due to the date of construction of the buildings, hazardous building materials may be present within the on-site structures and may...
include ACM, lead-containing paints, PCB light ballasts, mercury vapor-containing fluorescent light tubes, and mercury halide lights. Heating oil, diesel, and gasoline USTs or LUSTs and herbicide and pesticide storage areas may potentially be present at the site.

- Site #24: Orchard Field
  3775 N. Phoenix Road

According to the aerial photograph, this tax lot has been in use as a pear orchard since at least 1939. Agricultural chemicals including pesticides and herbicides have likely been used on the property. The use of agricultural chemicals under applicable regulations is considered an acceptable agricultural practice. Due to their widespread use throughout the U.S., accumulation in soils is so common that it is generally not regarded as contamination requiring remedial action. In cases where these materials are present at high levels due to spillage, mixing, or handling of these materials in bulk quantities, or where agricultural uses have been particularly intense, as in orchard usage, it is possible that contamination levels (e.g. arsenic and lead) would be found at levels for which the DEQ or EPA would require remedial action. No information was found indicating these conditions exist on this property.

- Site #25: Farm Buildings
  3381 N. Phoenix Road

Multiple farm and/or residential buildings are located at the above address. According to the aerial photographs, buildings have been present at these locations since at least 1939. Due to the date of construction of the buildings, hazardous building materials may be present within the on-site structures and may include ACM, lead-containing paints, PCB light ballasts, mercury vapor-containing fluorescent light tubes, and mercury halide lights. Heating oil, diesel, and gasoline USTs or LUSTs and herbicide and pesticide storage areas could potentially be present at the site.

6. ENVIRONMENTAL CONSEQUENCES

Hazardous materials include ignitable, toxic, corrosive, and reactive substances. By definition, hazardous materials have the potential to adversely affect human health and the environment. Hazardous materials can also have adverse economic impacts if spills or leaks necessitate site cleanup activities. The risk of adverse impacts can be minimized through strict adherence to proper storage, transport, and disposal procedures, and through preparation of detailed preventative contingency plans if hazardous materials are encountered during construction.
Construction and operation of the Project could potentially increase the risk of adverse environmental and liability impacts associated with any hazardous materials present within the Project area.

6.1 Direct Impacts

Direct effects, as defined by NEPA, are those that are caused by the action and occur at the same time and place [40 Code of Federal Regulation (CFR) 1508.8]. With respect to construction of the alternative, these impacts would include cuts and fills into the existing subsurface materials and modification of groundwater conditions.

The potential direct impacts of the hazardous material sites on construction of the Project may include the following:

- Delays to allow for negotiations with responsible parties, and regulatory agencies.
- Possible action by regulatory agencies.
- Remediation activities.
- Possible exposure of construction and excavation workers or the public to hazardous materials.
- Increased costs for disposal and replacement of contaminated soil and regulatory interaction.
- Possible releases of hazardous materials into previously unaffected areas.
- Improper handling of hazardous materials brought onto the construction sites during construction activities, which may lead to spills or releases to the environment.
- Possible exposure of abatement contractors to asbestos and lead-containing paint in buildings requiring demolition.

Further investigation of the affected environment, as well as early interaction with regulatory agencies during the planning phase, are anticipated to avoid or reduce the risk of the above listed potential effects from occurring.

Potential impacts of construction activities may vary with the different listed sites depending on the following factors:

- Types of listing, i.e., RCRA-SQGs, UST.
- Open or closed status of the listed site (NFA determination from the regulatory agency).
• Extent and magnitude of contamination reported for the listed site.

• Hydraulic and topographic location, i.e., up-gradient or down-gradient and the distance between the site and alternative.

For example, RCRA-generator sites are unlikely to impact construction activities. If the RCRA-generator site is a full or partial acquisition, then hazardous waste stored on the property may be required to be properly removed and disposed of at an approved hazardous waste disposal facility.

In addition, UST sites are unlikely to impact construction activities unless the sites were to be acquired by the Project. USTs could require decommissioning prior to construction activities.

The ECSI and LUST sites may present the greatest impacts during construction activities. Acquired ECSI and LUST sites that have not received a NFA determination from the DEQ (or have received a NFA in some cases) may be require further assessment to determine the extent and magnitude of soil and groundwater contamination. Adjacent or nearby ECSI and LUST sites may also require further assessment as contaminated groundwater may migrate past the property boundaries. Remedial activities may be required at listed sites that could be acquired for the Project.

Heating oil tank releases may also present concerns to construction activities if the property is to be acquired. However, due to the physical nature of heating oil, it is unlikely that releases on distant properties could impact construction activities because heavy oil has a low potential to migrate in soils or groundwater.

The following sections describe the hazardous materials impacts associated with the Project alternatives. With the two build alternatives, the sites identified have the potential (as low, moderate, or high) to impact the proposed alternative. A low concern indicates the potential for hazardous materials to impact the soil and groundwater beneath the alternative is insignificant, and no further action is needed. A moderate concern indicates the potential for hazardous materials to impact the alternative is present, and further action is recommended. A high concern indicates hazardous materials have a high potential to impact the alternative, and further action is recommended. The history and status of each of the listed sites is discussed above in the Affected Environment (Section 5).
No-Build Alternative

The No-Build Alternative would leave the current road system in place. If no changes were to occur to the current road configurations, any soil or groundwater contamination (if present) from the listed sites would still be present and would not be impacted. Therefore, none of the 25 Sites of Concern identified within the API would change as a result of this alternative. Sites 1 through 17 are located west of I-5; sites 18 through 25 are located east of I-5.

Fern Valley Thru Alternative

The potential for these 25 Sites of Concern to impact the Fern Valley Thru Alternative during construction is discussed below. Figures 9a and 9b indicate the location of each Site of Concern in relation to the Fern Valley Thru Alternative on the west and east sides of I-5, respectively.
Map Features
- Fern Valley East Alternative

Sites of Concern
- HIGH
- MODERATE
- LOW

Source: URS, ODOT

Fern Valley Thru Alternative: East of I-5

Figure 9b
November 2007

Source: URS, ODOT
Sites Located West of I-5

- **Site #1:** Glenwood Business Park
  The site is located approximately 3,750-feet to the northwest and cross-gradient of the Fern Valley Thru Alternative. Based on the NFA determination from the DEQ, the site’s distance from the alternative, and cross-gradient location, the site is a low concern to the Fern Valley Thru Alternative.

- **Site #2:** D & S Harley Davidson Inc. and Jack T. Walker
  The site is located approximately 1,320-feet to the northwest and cross-gradient of the Fern Valley Thru Alternative. There appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative because the UST has been decommissioned, and a release was not reported. The gasoline AST likely replaced the decommissioned UST. Therefore, this site is a low concern to the Fern Valley Thru Alternative.

- **Site #3:** Western Mechanical Inc.
  The site is located approximately 1,390-feet to the northwest and cross-gradient of the Fern Valley Thru Alternative. There appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative because the UST has been decommissioned, and a release was not reported. Therefore, this site is a low concern to the Fern Valley Thru Alternative.

- **Site #4:** Bear Creek Valley Sanitary Authority
  The site is located approximately 1,200-feet to the northwest and cross-gradient of the Fern Valley Thru Alternative. There appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative because the UST has been decommissioned, and a release was not reported. Therefore, this site is a low concern to the Fern Valley Thru Alternative.

- **Site #5:** OR HAZMAT Release
  The site is located approximately 1,070-feet to the northwest of the Fern Valley Thru Alternative. There appears to be a low potential that the release has impacted the Fern Valley Thru Alternative due to the distance between the address and the alternative. Therefore, this site is a low concern to the Fern Valley Thru Alternative.

- **Site #6:** Phoenix Circle K / ConocoPhillips #162 (Former Phoenix Exxon #9290)
  The Fern Valley Thru Alternative is aligned through the west and south property boundaries of this active gasoline service station.
The area of the former USTs where the LUST release was documented and cleaned up overlaps the Fern Valley Thru Alternative where N. Main Street would be widened. N. Main Street is located up-gradient to the LUST release. The analytical results from two soil samples collected from the west wall of the UST excavation, which is the side closest to N. Main Street, were non-detect for BTEX and TPH.

The widening of Fern Valley Road onto the south boundary of the site is located cross- to down-gradient of the LUST release. However, the groundwater results from the down-gradient monitoring well were non-detect for BTEX.

Based on the soil and groundwater sampling results and NFA determination from the DEQ, there appears to be a low potential that PCS and PCG resulting from the historical USTs are located beneath the Fern Valley Thru Alternative.

The widening of Fern Valley Road onto the south boundary of the site would also impact the three active fuel USTs located at the east corner of the site. The USTs would need to be decommissioned per the DEQ regulations. The USTs were likely installed in 1989 or the early 1990s as the historical USTs were removed in 1989. Based on the age of the USTs, there is a moderate possibility that there exist impacts to soil and groundwater beneath the three active USTs and thus beneath the Fern Valley Thru Alternative. Soil and groundwater sampling by licensed personnel is required during the decommissioning.

The motor oil release documented by the OSFM is a low concern to the alternative as the release occurred within the paved right of way or paved portions of the site.

In summary, the site is a moderate concern to the Fern Valley Thru Alternative due to the likely required decommissioning of the active USTs.

- Site #7: Residences

The Fern Valley Thru Alternative is aligned through three adjacent residential tax lots. There is a high potential for hazardous building materials to be present within the structures on these tax lots. In addition, there is a high potential for heating oil USTs to be present at the tax lots. Residential heating oil USTs are not listed on the DEQ UST database.

After completing hazardous building materials assessments and prior to disturbance, the identified ACM should be removed and disposed of in accordance with the appropriate OR-OSHA and DEQ regulations. Abatement of the ACM must be performed by a licensed asbestos abatement contractor prior to disturbance. In addition, necessary precautions must be taken to prevent or minimize worker exposure to lead during disturbance of lead-containing materials. Lead-containing regulated materials also require disposal classification.
DRAFT

The light fluorescent fixtures should be removed and inspected for “No PCBs” labeling prior to demolition. Ballasts without “No PCBs” labels should be considered to be PCB ballasts. Handling and disposal of PCB light ballasts must be in accordance with the EPA Toxic Substance Control Act PCB Regulations. In addition, fluorescent light tubes are typically considered hazardous building materials due to their potential for containing mercury vapors. Intact removal and recycling of the fluorescent light tubes is recommended.

If heating oil USTs are discovered, then the USTs are required to be decommissioned under the appropriate DEQ regulations. Soil and groundwater sampling by licensed personnel and submittal of documentation are also required by the DEQ when decommissioning an UST.

Overall, the residences represent a high concern to the Fern Valley Thru Alternative because the demolition of the buildings would be required.

- Site #8: OR HAZMAT Release

The Fern Valley Thru Alternative is aligned to acquire a small portion of the west property boundary of the residence listed at the address of this release. The release was reportedly cleaned up; thus this site is a low concern to the Fern Valley Thru Alternative.

- Site #9: Phoenix Automotive Center

The Fern Valley Thru Alternative is aligned to acquire a small portion of the east property boundary of the site. The alternative would not impact the on-site building.

The AST is a low concern to the Fern Valley Thru Alternative as it is highly unlikely that the AST is located along the property boundary. The AST is more likely located at the rear of the building towards the west. The AST is a low concern to the Fern Valley Thru Alternative.

Multiple hydraulic hoists were observed inside the automotive center, and these types of hoists are known to leak oil if not properly maintained. The automotive center is located up-gradient of the Fern Valley Thru Alternative. However, due to the relatively new age of the automotive center, the below ground hoists are a low concern to the Fern Valley Thru Alternative.

- Site #10: R C Auto Parts Inc.

The Fern Valley Thru Alternative is aligned to acquire a small portion of the west property boundary of the site. The site is a low concern as it is highly unlikely that the AST is located along the property boundary.
• Site #11: OR HAZMAT Release

The release potentially occurred within the footprint of the alternative. The release is a low concern to the Fern Valley Thru Alternative as it likely occurred within the paved right-of-way and did not impact the subsurface.

• Site #12: Phoenix Discount Gas / Bi-Mor Stations, Inc. #2

The active gasoline service station is located approximately 39 feet to the south-southeast and down-gradient of the Fern Valley Thru Alternative. Based on the site’s down-gradient location, there appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative.

• Site #13: OR HAZMAT Release

The address of the release is located approximately 692 feet to the south-southeast, cross-gradient of the Fern Valley Thru Alternative. Based on the site’s distance from the alternative and cross-gradient location, there appears to be a low potential that the release has impacted the Fern Valley Thru Alternative.

• Site #14: Ken's Automotive

The automotive repair shop is located approximately 1,630 feet to the southwest, cross-gradient of the Fern Valley Thru Alternative. Based on the site’s distance from the alternative and cross-gradient location, there appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative.

• Site #15: Phoenix Elementary School: Heating Oil Tank

The elementary school is located approximately 1,310 feet to the southwest, cross-gradient of the Fern Valley Thru Alternative. Based on the site’s distance from the alternative, cross-gradient location, and lack of groundwater impacts, there appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative.

• Site #16: Former Special Products of Oregon

The former wood products facility is located approximately 3,280 feet to the southwest of the Fern Valley Thru Alternative. Based on the site’s distance from the alternative, there appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative.

• Site #17: Lindvig Machine Shop

The former wood products facility is located approximately 2,620 feet to the south of the Fern Valley Thru Alternative. Based on the site’s distance from the
alternative, there appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative.

Sites Located in the Interchange Area

No Sites of Concern were identified in the interchange area.

Sites Located East of I-5

- Site #18: OR SPILLS Release

  The address of the release would situate the release adjacent to the northeast of the Fern Valley Thru Alternative. Due to the small quantity of the release, the spill is a low concern.

- Site #19: PETRO Truck Stop (Formerly the Pear Tree Center)

  The truck stop and retail gasoline service station is located approximately 20 feet to the east and from 5 to 20 feet to the north (up-gradient) of the Fern Valley Thru Alternative. On November 23, 2003, approximately 2,900 gallons of diesel were released directly to the subsurface when a fuel line leaked due to equipment failure. No soil and groundwater data or information indicating remedial activities occurred were listed in the DEQ file. Due to the close and up-gradient location of the alternative to this site, there is a high potential for PCG to be located beneath the Fern Valley Thru Alternative.

  In summary, this site is a high concern to the Fern Valley Thru Alternative, and soil and groundwater sampling within the construction area is recommended along Fern Valley Road.

- Site #20: Former Giant Cardlock Station

  The Fern Valley Thru Alternative is aligned through the north half of the tax lot formerly occupied by a gasoline service station. Even though the station was issued a NFA determination from the DEQ, TPH remains on-site at elevated concentrations. The NFA may have been issued due to the current land use of the site and the lack of potential receptors to the remaining soil contamination. Therefore, there is a high potential for PCS to be located beneath the Fern Valley Thru Alternative. In addition, potential impacts to shallow groundwater beneath the site have not been investigated. Therefore, there is a high potential for PCG to be located beneath the Fern Valley Thru Alternative. In summary, this site is a high concern to the Fern Valley Thru Alternative, and soil and groundwater sampling within the construction area is recommended.
• Site #21: DSU Peterbilt & GMC Inc.

The Fern Valley Thru Alternative is aligned slightly through the northeast corner and along the south property boundary. The site is a low concern as it is highly unlikely that the AST is located along the property boundary and in addition because no RCRA violations were reported.

• Site #22: Arrowhead Comice Orchard - UST

The area of the former UST is located approximately 100 feet up-gradient to the north of the Fern Valley Thru Alternative. Based on the NFA determination from the DEQ and the low concentrations of impacts to soil and groundwater at the area of the former UST, there appears to be a low potential that PCG has migrated beneath the Fern Valley Thru Alternative.

• Site #23: Farm Buildings

The Fern Valley Thru Alternative is aligned between the two groups of farm and/or residential buildings. Hazardous building materials may be present within the structures on these tax lots; however, it appears the buildings may not be required to be demolished. In addition, there is a potential for a heating oil, diesel, or gasoline UST to be present near or inside the buildings. See Site #7 for a discussion concerning requirements for hazardous building materials and USTs. Overall, the site appears to be a moderate concern due to the possibility that an unregistered UST or LUST maybe located within the footprint of the alternative.

• Site #24: Orchard Field

The Fern Valley Thru Alternative is aligned through the center of this tax lot occupied by a pear orchard. The potential presence of herbicides and pesticides at elevated concentrations in the surface soil is a high concern. Therefore, surface soil sampling within the construction area is recommended.

• Site #25: Farm Buildings

The Fern Valley Thru Alternative is aligned through the southwest corner of the tax lot occupied by several buildings. Hazardous building materials may be present within the structures; however, it appears the building may not be required to be demolished. In addition, there is a potential for a heating oil, diesel, or gasoline UST to be present near or inside the buildings. See Site #9 for a discussion concerning requirement for hazardous building materials and USTs. Overall the site appears to be a moderate concern due the possibility that an unregistered UST or LUST maybe located within the footprint of the alternative.
N. Phoenix Thru Alternative

The potential for these 25 Sites of Concern to impact the N. Phoenix Thru Alternative during construction is discussed below. 10a and 10b indicate the location of each Site of Concern in relation to the N. Phoenix Thru Alternative on the west and east sides of I-5, respectively.
Sites Located West of I-5

The potential hazardous material impacts for the N. Phoenix Thru Alternative are the same for all of the Sites of Concern located west of I-5 (Sites 1 through 17).

Sites Located in the Interchange Area

No Sites of Concern were identified in the interchange area.

Sites Located East of I-5

Sites 24 and 25 (Orchard Field and Farm Buildings, respectively) would impact the N. Phoenix Thru Alternative with the same environmental consequences as the Fern Valley Thru Alternative. The two build alternatives are located in different positioning relative to sites 18 through 23; therefore, these six sites may impact the two alternatives differently. Potential impacts to the N. Phoenix Thru Alternative from sites 18 through 23 are discussed below:

- Site #18: OR SPILLS Release

  The address of the release would situate the release approximately 716 feet to the east, up-gradient of the N. Phoenix Thru Alternative. Due to the distance and the small quantity of the release, the spill is a low concern.

- Site #19: PETRO Truck Stop (Formerly the Pear Tree Center)

  The N. Phoenix Thru Alternative is aligned along the north property boundary and approximately 20 feet to the east (down-gradient) of the truck stop. No information including soil and groundwater data or remedial activities were listed in the DEQ file after approximately 2,900 gallons of diesel were reportedly released directly to the subsurface. Due to the close and up-gradient location of the alternative to this site, there is a high potential for PCG to be located beneath the N. Phoenix Thru Alternative. Potential impacts to the N. Phoenix Thru Alternative are greater than the Fern Valley Thru Alternative because the N. Phoenix Thru Alternative is closer to the area of the large diesel release. In addition, monitoring well (MW-7) is located within the footprint of the new alternative. The monitoring well is required to be abandoned appropriately per the Oregon Water Resources Department (OWRD) Administrative Rules 690-240-0510 Abandonment of Monitoring Wells.

  In summary, in addition to the monitoring well requiring abandonment, this site is a high concern to the N. Phoenix Thru Alternative, and soil and groundwater sampling within the construction area is recommended along Fern Valley Road.
Site #20: Former Giant Cardlock Station

The tax lot formerly occupied by a gasoline service station is located adjacent to the northeast of the N. Phoenix Thru Alternative. Even though the station was issued a NFA determination from the DEQ, potential impacts to shallow groundwater beneath the site have not been investigated. Therefore, there is a moderate potential for PCG to be located beneath the N. Phoenix Thru Alternative. Therefore, groundwater sampling within the construction area is recommended.

Site #21: DSU Peterbilt & GMC Inc.

This site is generally surrounded by the N. Phoenix Thru Alternative. The alternative is aligned slightly through the southeast corner and is also located 20 feet to the northwest of the site. The site is a low concern as it is highly unlikely that the AST is located along the property boundary and because no RCRA violations were reported.

Site #22: Arrowhead Comice Orchard

The area of the former UST was located approximately 120 feet up-gradient to the north-northeast of the N. Phoenix Thru Alternative. Based on the NFA determination from the DEQ and the low concentrations of impacts to soil and groundwater at the area of the former UST, there appears to be a low potential that PCG has migrated beneath the N. Phoenix Thru Alternative.

Site #23: Farm Buildings

The farm and/or residential buildings are located approximately 400 feet to the east of the N. Phoenix Thru Alternative. Therefore, the buildings would not be required to be demolished. These buildings are of no concern to this alternative.

Build Alternative Comparison

In summary, no Sites of Concern were identified in the interchange area for either alternative. Sites 1 through 17, which are all the sites located west of I-5, and sites 24 and 25, which are two of the eight sites located east of I-5, would impact both alternatives with the same environmental consequences because both alternatives are located the same distance and direction from these sites.

The two alternatives are located at different positioning compared to Sites 18 through 23, which are located east of I-5; however, the concern related to possible hazardous material impacts is the same for four (18, 19, 21, and 22) of these six sites.

The remaining two sites (20 and 23) potentially impact the Fern Valley Thru Alternative more than the N. Phoenix Thru Alternative due to their proximity. Site 23, the Farm
Buildings, is no concern to the N. Phoenix Thru Alternative, but a moderate concern to the Fern Valley Thru Alternative. Site 20, Former Giant Cardlock Station is a moderate concern to the N. Phoenix Thru Alternative and a high concern to the Fern Valley Thru Alternative.

6.2 Indirect Impacts

Indirect effects are caused by the proposed action, are later in time, and are reasonably certain to occur (50 CFR 402.02).

No-Build Alternative

If no changes were to occur to the current roadway configuration, any soil or groundwater contamination (if present) from the listed sites would still be present.

Fern Valley Thru Alternative

Project activities could potentially have both beneficial and non-beneficial effects on the API upon completion. The potentially beneficial effects include:

- Increased public safety and positive impacts on the environment associated with possible contamination removal in the API.
- Improved understanding of existing subsurface conditions from subsurface investigations.
- Enhanced assessment of property values within API as a result of subsurface investigations.

The potential non-beneficial indirect effects consist mainly of:

- Possible short-term exposure of hazardous materials to the public and environment as a result of construction activities.
- Possible re-mobilization of existing contaminated soil and groundwater due to excavation below sub-grade. Groundwater may preferentially flow within the newly constructed utility corridors.

N. Phoenix Thru Alternative

Potential indirect impacts for the N. Phoenix Thru Alternative would be the same as those identified for Fern Valley Thru Alternative.
6.3 Cumulative Impacts

Cumulative impacts are defined by NEPA as the environmental impacts which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. (40 CFR 1508.7)

**No-Build Alternative**

There would be no cumulative impacts to Sites of Concern associated with the No-Build Alternative.

**Fern Valley Thru Alternative**

Numerous project actions could potentially have beneficial and non-beneficial effects on the API, both during and after the completion of activities. The potentially beneficial effects include:

- Improved public and environmental safety within and adjacent to the API as a result of subsurface investigations and site-remediation actions necessary for construction activities and risk-based site closures.
- Improved worker and public safety during construction as a result of following necessary safety protocols associated with hazardous materials.
- Better understanding of existing hazardous materials located above and below the ground surface.

The potentially non-beneficial effects include:

- Possible increase to human health and safety hazards due to potential disturbance and exposures to contaminated soil and groundwater during and after construction activities.
- Potential increased use of hazardous materials in the API as a result of possible increased commercial development and activity due to project completion. Further development of the area may lead to the likelihood that sites not contaminated with hazardous materials will become contaminated. Further construction of utility corridors and structures on the impacted sites will lead to exposure to construction workers and building occupants.
- Potential increased cumulative demand for impacted soil disposal facilities.
**N. Phoenix Thru Alternative**

Potential cumulative impacts associated with the N. Phoenix Thru Alternative would be the same as the cumulative impacts listed for Fern Valley Thru Alternative.

### 6.4 Construction Impacts

This section provides an overview of potential impacts associated with construction activities associated with the Alternatives.

**No-Build Alternative**

There would be no construction activities associated with the No-Build Alternative.

**Fern Valley Thru Alternative**

Development of the Project could cause construction workers to be exposed to hazardous materials. However, the level of exposure to construction workers would be minimized with proper training and the use of appropriate protective equipment.

**N. Phoenix Thru Alternative**

Construction impacts associated with the N. Phoenix Thru Alternative would be the same as those listed for Fern Valley Thru Alternative.

### 7. MITIGATION AND CONSERVATION MEASURES

This section identifies potential measures that could be utilized to mitigate impacts associated with the Fern Valley Thru and the N. Phoenix Thru Alternatives. Mitigation measures are recommended actions that could minimize, avoid or compensate for potential impacts that have been identified. This section addresses both long-term and construction (short-term) mitigation measures.

#### 7.1 NO BUILD ALTERNATIVE

If neither of the build alternatives were implemented, no mitigation measures would be necessary, except the current on-site remediation activities or recommendations would still be applicable for each listed site.
7.2 Fern Valley Thru Alternative

- The acquisition and/or leasing of land containing hazardous waste could incur risk of financial liability if contamination requiring characterization, removal, or disposal were to be discovered. To reduce liability risks, the data compiled in this report would be reviewed and evaluated to identify parcels where hazardous materials are known to exist or may be present.

- Prior to acquisition and/or leasing, the appropriate regulatory agencies would be contacted in order to determine whether more recent information is available, and whether further assessment of the parcels is scheduled. The information obtained may be provided to the agency’s legal counsel so that appropriate steps can be taken in evaluating sites for acquisition and/or leasing and to decrease the agency’s risk of liability.

- After the alternatives are selected, other steps can be taken to further reduce the risk for financial liability during the acquisition and/or lease of a contaminated site. Entering into an agreement with a regulatory agency, such as a Prospective Purchase Agreement (PPA), may lessen future liabilities resulting from purchasing impacted properties. A limited sampling and analysis program, coordinated in conjunction with geotechnical investigations, could be developed and implemented on sites with known contamination. Conducting geophysical surveys at sites with suspected USTs, or where UST locations are unknown, could reduce the risk of encountering buried USTs, product pipelines, or other anomalies such as utility lines that could adversely impact construction activities.

- Where potential hazardous materials would be displaced or are located in close proximity to the proposed alternative, additional in-depth study would be conducted as needed. This could include reviewing files and permits, conducting geophysical surveys, and/or conducting subsurface assessments. A limited sampling and analysis program, coordinated in conjunction with geotechnical investigations, could be developed and implemented on sites with known contamination.

- Emergency response procedures, consistent with existing laws and regulations would be developed for use by ODOT personnel and the construction contractor in the unlikely event of a major hazardous materials release close to the selected alternative. Typical activities covered in such procedures include accidents, reporting of suspicious dumping or releases along the alternative and monitoring of RCRA permit applications, and hazardous materials spill reports. Federal, state, and local government agencies have developed contingency plans in the event of an accidental release or spill of hazardous materials.

- Controls and measures would be planned, designed and implemented to avoid further exacerbation of impacted sites, and plans and procedures would be prepared to prevent future releases or spills.
Mitigation for each of the listed sites could vary based on the different site conditions and/or levels of contamination or suspected contamination within the soil and/or groundwater. With some of the sites, no mitigation may be necessary; other sites that may require extensive on-site mitigation.

Adverse impacts from contamination during construction would be minimized or avoided. A work plan would be designed for each site, which could include actions to be implemented if construction activities encounter impacted soil and/or groundwater. Sites that have the potential for contaminated groundwater to be encountered may include recommended actions for dewatering the groundwater table, and treatment and disposal plans for the groundwater generated. In cases where construction could encounter impacted soils, actions may include excavation and the proper disposal of impacted soils. Other actions could include modifications to the alternative design. For sites that have impacted soils or groundwater, grading alternatives may be considered to avoid encountering groundwater during construction activities.

Depending on the selected alternative and the potential severity of hazardous materials exposure associated with it, a Health and Safety Plan would be developed for all construction activities consistent with applicable laws in effect at the time of construction. A qualified health and safety specialist, such as a Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP) could prepare the plan, based on the evaluation of the proposed construction activities. Additionally, an occupational monitoring program is required to be in place. The plan could prescribe safe work practices, personal protective equipment (i.e., tyvek suits, respiratory protection, emergency response, safety training) requirement for all construction workers. The need for construction site monitoring for detection of toxic or explosive conditions would also be addressed.

Additionally, the closure of impacted soil and/or groundwater areas remaining beneath the newly constructed alternative would be addressed with the appropriate regulatory agencies prior to construction.

Additional specific mitigation measures that would be included in the Project specifications include:

- For any right of way acquisition involving USTs and hazardous materials, the owner will have the responsibility to provide the state with a site free and clear of any contaminants, and to coordinate a cleanup and closure plan with DEQ, as necessary.

- For all facilities or residences in the Project vicinity that will be renovated, relocated, or demolished, the appropriate governing bodies will be contacted to assure proper handling and disposal of regulated materials. With their approval, the work will be completed in accordance with the appropriate laws, rules, and regulations.

- The construction of the preferred alternative may require the demolition of structures. ACM and other hazardous building materials including: lead-containing
paints, polychlorinated biphenyl (PCB) light ballasts, mercury vapor-containing fluorescent light tubes, and mercury halide lights may have been used in these buildings.

For buildings to be relocated or demolished, the DEQ is required to be notified, even for those not containing ACM. Prior to the removal of the buildings in the proposed right of way, an AHERA accredited asbestos inspector and an Oregon DHS certified lead-based paint inspector will complete a hazardous building materials assessment. If ACM is detected in buildings that will be demolished or removed, the contractor and method of removing, handling, and disposal of the materials will be approved by the DEQ.

- A work plan will be implemented for each site and will include actions to be implemented if construction activities encounter septic-contaminated soil and/or groundwater. There is a potential for contaminated groundwater to be encountered. Recommended actions include a method to lower the groundwater table and dispose of groundwater; if construction encounters contaminated soils, actions will include proper excavation and handling of contaminated soils.

- Hazardous substances on properties may be encountered during project construction. A contingency plan for emergency response and cleanup of hazardous waste will be included in the construction contract. The contaminated sites must be investigated by a qualified contractor. If hazardous wastes are identified, ODOT will coordinate the cleanup plans with DEQ region personnel.

- Mitigation measures for hazardous material spills will consist of accident prevention and diverting spilled materials away from surface water resources.

- ODOT will comply with all applicable federal, state, and local laws and regulations as they pertain to the storage, handling, management, transportation, disposal and documentation of hazardous substances (as defined in ORS 465.200); oil and hazardous materials (as defined in OAR 340-108-0002); hazardous waste (as defined in 40 CFR 261 and OAR 340-101-0033); solid waste (as defined in 40 CFR 258, ORS 459 and OAR 340).

### 7.3 N. Phoenix Thru Alternative

Mitigation measures for the N. Phoenix Thru Alternative would include the same measures listed for the Fern Valley Thru Alternative.
8. LIST OF PREPARERS


Williams, Shawn, Senior Project Manager. Experience in hazardous materials since 1985.

9. REFERENCES AND INFORMATION SOURCES

9.1 REFERENCES

DEQ's Environmental Cleanup Site Information (ECSI) Online Database,
http://www.deq.state.or.us/wmc/ECSI/ecsiquery.asp?listtype=ecsilist.asp&listtitle=ECSI+Database

DEQ's Leaking Underground Storage Tank (LUST) Cleanup Site Online Database,
http://www.deq.state.or.us/lq/tanks/lust/LustPublicLookup.asp

DEQ's Underground Storage Tank (UST) Online Database,
http://www.deq.state.or.us/lq/pubs/docs/tanks/FacilitiesList.pdf


Oregon State Fire Marshal, 2007. Community Right-to-Know (CR2K), Hazardous Substance Incident Search
http://www.sfm.state.or.us/CR2K_IncDB/Incident_Search.html. Accessed June

APPENDIX A: Photographs
### I-5: Fern Valley Interchange
#### Photographic Log
Photos Taken: May 20, 2007

<table>
<thead>
<tr>
<th>Photo No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>View of the front of Site #2, D &amp; S Harley Davidson Inc. and Jack T. Walker.</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Site # 6, Phoenix Circle K / ConocoPhillips #162 (Former Phoenix Exxon #9290)</td>
</tr>
</tbody>
</table>
I-5: Fern Valley Interchange  
Photographic Log  
Photos Taken: May 20, 2007

<table>
<thead>
<tr>
<th>Photo No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
<td><strong>Site # 9, Phoenix Automotive Center. The below ground hydraulic hoists are visible in the service bays.</strong></td>
</tr>
<tr>
<td><strong>4</strong></td>
<td><strong>Site #12, Phoenix Discount Gas / Bi-Mor Stations, Inc. #2</strong></td>
</tr>
</tbody>
</table>

**Photo No. 3**  
**Direction Photo Taken:** Southwest  
**Description:** Site # 9, Phoenix Automotive Center. The below ground hydraulic hoists are visible in the service bays.

**Photo No. 4**  
**Direction Photo Taken:** East  
**Description:** Site #12, Phoenix Discount Gas / Bi-Mor Stations, Inc. #2
<table>
<thead>
<tr>
<th>Photo No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>East</td>
</tr>
<tr>
<td></td>
<td>Site #19, PETRO Truck Stop and Shopping Center</td>
</tr>
<tr>
<td>6</td>
<td>South</td>
</tr>
<tr>
<td></td>
<td>Site #19, PETRO Truck Stop and Shopping Center</td>
</tr>
<tr>
<td>Photo No.</td>
<td>7</td>
</tr>
<tr>
<td>-----------</td>
<td>---</td>
</tr>
<tr>
<td>Direction Photo Taken:</td>
<td>North-Northwest</td>
</tr>
<tr>
<td>Description:</td>
<td>Site #21, DSU Peterbilt &amp; GMC Inc.</td>
</tr>
</tbody>
</table>